OWNER'S NAME
STREET ADDRESS
CITY AND STATE (OR PROVINCE IN CANADA)
MOTOR HOME SERIAL NUMBER
VEHICLE CHASSIS IDENTIFICATION NO. (VIN)
DATE OF DELIVERY TO FIRST RETAIL PURCHASER
VEHICLE MILEAGE AT TIME OF DELIVERY
SELLING DEALER NAME AND ADDRESS

EMERGENCY INFORMATION

YOUR WINNEBAGO INDUSTRIES DEALER

Name _____

Address _____

_____

Contact Person _____

Phone _____

CHASSIS DEALER/SERVICE CENTER

Name _____

Address _____

_____

Contact Person _____

Phone _____

INSURANCE POLICY

Company _____

Policy Number _____

Phone _____

2005 NEW VEHICLE LIMITED WARRANTY
WINNEBAGO INDUSTRIES, INC.

WARRANTY COVERAGE TO OWNER
Winnebago Industries, Inc. of Forest City, Iowa warrants each new Winnebago Industries motor home to the owner for use in the U.S.A. and Canada as follows:

WARRANTY PERIOD
The Warranty Period for all coverages begins on the date the vehicle is delivered to the first retail purchaser or first placed in service as a demonstrator or company vehicle.

BASIC COVERAGE
The basic Warranty Period is 12 months or 15,000 miles (24,135 kilometers), on the odometer, whichever occurs first. Winnebago Industries does not authorize any person to create for it any other obligations or liability in connection with this vehicle. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE APPLICABLE TO THIS VEHICLE IS LIMITED IN DURATION TO THE DURATION OF THIS WRITTEN WARRANTY AS HEREINBEFORE OR HEREINAFTER PROVIDED. THE PERFORMANCE OF REPAIRS IS THE EXCLUSIVE REMEDY UNDER THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. WINNEBAGO INDUSTRIES SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOSS OF TIME, INCONVENIENCE, OR OTHER CONSEQUENTIAL DAMAGE INCLUDING EXPENSE FOR GASOLINE, TELEPHONE, TRAVEL, LODGING, LOSS OR DAMAGE TO PERSONAL PROPERTY, OR LOSS OF REVENUE RESULTING FROM BREACH OF THIS WRITTEN WARRANTY OR ANY IMPLIED WARRANTY. Some states do not allow limitations on how long an implied warranty will last or the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you.

ITEMS NOT SUBJECT TO WARRANTY COVERAGE.
Chassis, Drivetrain and related components*
Wheels*
Tires*
Service Items, such as Windshield Wiper Blades, Lubricants, Fluids & Filters
Adjustments

*These items are covered under the manufacturer's individual warranty.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Also, this warranty shall not apply to failures, damage or malfunctions resulting from normal wear, misuse, abuse, negligence, alteration, accident, fire, improper repair of the vehicle or failure to follow recommended maintenance requirements.

36 MONTHS/36,000 MILE STRUCTURAL WARRANTY
At the expiration of the Basic Coverage and for the remainder of the period of 36 months or 36,000 miles (57,924 kilometers), on the odometer, whichever occurs first, Winnebago Industries warrants the following:

1. Body Thermo-Panel® Lamination of the sidewalls and backwall against delamination. Body Thermo-Panel® Lamination is the bonding of the exterior skin and the interior paneling to an insulating core material. Delamination (separation of layers) caused by other factors such as physical damage or failure to properly maintain sealants is not covered by this warranty.
2. The slide-out room assembly for defects in material or workmanship.
3. Structural defects of the subfloor and floor. Floor lamination failure and lamination failure of the subfloor panels and risers are covered by the structural warranty.

WINNEBAGO INDUSTRIES' RESPONSIBILITY
Any part of the vehicle subject to warranty which is found to be defective in material or workmanship, will be repaired or replaced at Winnebago Industries' option upon notice of the defect without charge to the customer for parts or labor. While any Winnebago Industries motor home dealer can perform warranty service, we recommend you return to the dealership that sold you your vehicle. If you are touring or have moved, contact any Winnebago Industries motor home dealer in the United States or Canada for warranty service.

CUSTOMER RESPONSIBILITY WHEN REPAIRS ARE NEEDED
If a part of the system covered by this warranty fails to function or requires service during the warranty period:

1. Promptly take the vehicle to the selling dealer for repair or inspection.
2. Written notice of defects must be given to the selling dealer or manufacturer no later than 10 days after the expiration of the warranty.
3. If the dealer is incapable of making the repairs, request that he contact Winnebago Industries, Inc.
4. If, after the above steps are completed and the repair is not made, the customer should contact Winnebago Industries, Inc., P.O. Box 152, Forest City, Iowa 50436, Attention: Owner Relations Department (800-537-1885) and furnish the following information:
   - The complete serial number of the vehicle
   - Date of retail purchase
   - Selling dealer's name
   - Nature of the service problem, and a brief explanation of the steps or service the dealer has performed, and the results obtained. The customer may be directed to another dealer or service center for repairs to be completed, if such a dealer or service center is better able to complete the repair.

Winnebago Industries may, at its option, request the vehicle be returned to Forest City, Iowa for repair. If the customer refuses to allow repairs to be performed at the Forest City, Iowa facility, the warranty on that repair will be voided.

5. If after the above steps are completed and the repairs are not satisfactory, the customer may contact the Service Administration Manager of Winnebago Industries, and request a customer relations board meeting to resolve the problem. This action, however, is not mandatory.
6. Certain components are covered beyond the 12 months/15,000 miles basic warranty coverage by the individual manufacturer's warranty. Please refer to the component's information supplied in the owner's information InfoCase for any additional warranty coverage after the basic warranty has expired.

DEALER'S REPRESENTATIONS EXCLUDED
Winnebago Industries, Inc. does not undertake the responsibility to any purchaser of its products for any undertaking, representation, or warranty made by dealers selling its product beyond those herein expressed.

INSTALLATION NOT COVERED
Winnebago Industries, Inc. cannot , however, and does not accept any responsibility in connection with any of its motor homes for additional equipment or accessories installed at any dealership or other place of business, or by any other party other than Winnebago Industries, Inc. Such installation of equipment or accessories by any other party will not be covered by the terms of this warranty.

CARE AND MAINTENANCE
It is the owner's responsibility to perform the care, maintenance and proper load distribution described in the owner's manual which

accompanies your motor home. Any damage which results to your vehicle as a result of your failure to perform such duties, is not covered.

Damage to appearance items such as fiberglass, metal, paint, fabrics and trim, may occur during manufacturing or transporting. Normally, any factory defect or damage is corrected at the factory. In addition, dealers are obligated to inspect each vehicle upon delivery to them and prior to delivery to you. You should also immediately inspect appearance items and advise your selling dealer of any discrepancies. Damage and normal deterioration due to use and exposure is not covered by this warranty.

CHANGES IN DESIGN

Winnebago Industries, Inc. reserves the right to make changes in design and changes or improvements upon its products without imposing any obligation upon itself to install the same upon its products theretofore manufactured.

NEW YORK:

If your motor home has been repaired three or more times for the same nonconformity, defect, or condition, or if your motor home has been out of service by reason of repair for twenty-one days, Section 198-a of the General Business Law of the State of New York requires you to provide written notice by certified mail, return receipt requested, to Winnebago Industries or its authorized dealer before making any claim under that section of the law. If you do have problems with your motor home, you should provide written notice to Winnebago Industries at the following address:

Winnebago Industries, Inc.
P.O. Box 152
Forest City, Iowa 50436
Atten: Owner Relations

Minnie

TABLE OF CONTENTS

Minnie

SECTION 1 SPECIFICATIONS

TANK CAPACITIES

Chassis Fuel Tank
22' models only ..... 37 gal.
All models 24' or longer ..... 55 gal.

LP Gas Tank
All Models ..... 14 gal.* (18 gal. w.c.)

Fresh Water Tank
Models 322E & 322R ..... 28 gal.
Model 324F ..... 32 gal.
Models 324V & 326A ..... 38 gal.
Models 327L, 329B & 329K ..... 39 gal.
Models 331C & 332G ..... 31 gal.

Water Heater - All Models ..... 6 gal.

HT1 - Black Water Holding Tank
Models 329B, 329K & 332G (Toilet) ..... 31 gal.
Model 322E (Toilet & Lavatory) ..... 39 gal.
Model 322R (Toilet & Lavatory) ..... 32 gal.
Models 324F, 324V & 326A (Toilet & Lavatory) ..... 39 gal.
Models 327L (Toilet) ..... 31 gal.
Model 331C (Toilet & Lavatory) ..... 36 gal.

HT2 - Gray Water Holding Tank
Model 327L, 329B, 329K & 332G (Galley, Shower & Lavatory) ..... 39 gal.
Model 322E (Galley & Shower) ..... 32 gal.
Model 322R (Galley & Shower) ..... 39 gal.
Model 324F, 324V & 326A (Galley & Shower) ..... 30 gal.
Model 331C (Galley & Shower) ..... 29 gal.

**LP Gas tank capacity shown is the usable "full" LP gas capacity, which is 80% of the tank manufacturer's listed water capacity (w.c. shown in parenthesis). An LP tank must have at least 20% of tank volume free to allow for expansion and proper vaporization of the liquid fuel. The tank is also equipped with mandatory safety shut-off equipment that prevents filling above this level.*

NOTE: Capacities shown are approximate volumes based on computer design calculations. Usable capacities may vary according to fabrication and installation of tanks and compartments.

BODY & CHASSIS SPECIFICATIONS										
Model	**322E**	**322R**	**324F**	**324V**	**326A**	**327L**	**329B**	**329K**	**331C**	**332G**
Length (Bumper to Bumper)	22’ 1”	22’ 1”	24’ 7”	24’ 7”	27’ 1”	27’ 11”	29’ 4”	29’ 4”	31’ 4”	32’ 1”
Interior Width	8’ 0”	8’ 0”	8’ 0”	8’ 0”	8’ 0”	8’ 0”	8’ 0”	8’ 0”	8’ 0”	8’ 0”
Exterior Width	101.5”	101.5”	101.5”	101.5”	101.5”	101.5”	101.5”	101.5”	101.5”	101.5”
Interior Height	6’ 8”	6’ 8”	6’ 8”	6’ 8”	6’ 8”	6’ 8”	6’ 8”	6’ 8”	6’ 8”	6’ 8”
Exterior Height w/AC	11’ 0”	11’ 0”	11’ 3”	11’ 5”	11’ 2”	11’ 1”	11’ 2”	11’ 3”	11’ 3”	11’ 4”
Exterior Storage (cu. ft.)	10.7	17.1	35.0	38.0	117.1	19.9	57.6	52.6	39.6	45.5
GCWR (lbs.) opt	18,500	18,500	20,000	18,500-20,000	20,000	20,000	20,000	20,000	20,000	20,000
GVWR (lbs.) opt	10,700	10,700	14,050	11,500-14,050	14,050	14,050	14,050	14,050	14,050	14,050
GAWR - Front (lbs.) opt	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600	4,600
GAWR - Rear (lbs.) opt	7,500	7,500	9,450	7,800 9,450	9,450	9,450	9,450	9,450	9,450	9,450
Wheelbase	138”	138”	158”	158”	158”	182”	190”	190”	220”	215”

NOTE: The height of each model is based on the curb weight of a typically equipped unit and is measured to the highest standard feature on the roof. The actual height of a vehicle may vary by several inches depending on equipment variations.

SECTION 2 INTRODUCTION

IMPORTANT: Before driving your vehicle, be sure you have read the entire operator's manual and that you understand your vehicle's equipment completely and how to use the equipment safely.

NOTE: The descriptions, illustrations, and specifications in this manual were correct at the time of printing. We reserve the right to change specifications or design without notice, and without incurring obligation to install the same on products previously manufactured.

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

Your motor home has been carefully designed, engineered and manufactured to provide dependability as well as safety. Before sliding into the driver's seat, please become familiar with operations and features. This manual was prepared to aid you in the proper care and operation of the vehicle and equipment. We urge you to read it completely. In addition, spend some time with the dealer when you take delivery, you will want to learn all you can about your new motor home.

Read and understand all instructions and precautions in this manual before operating your new motor home.

ABOUT THIS MANUAL

This manual describes many features of your motor home and includes instructions for its safe use. This manual, including photographs and illustrations, is of a general nature only. Some equipment and features described or shown in this manual may be optional. Because of Winnebago Industries' continuous program of product improvement, it is possible that recent product changes and information may not be included. The instructions included in this manual are intended as a guide, and in no way extend the responsibilities of Winnebago Industries beyond the standard written warranty as presented in this manual.

Please read this operator's manual completely to understand how everything in your coach works before taking it on its "maiden voyage."

This manual is a guide to safe operation of the features, equipment and controls in this coach. Some equipment, such as the vehicle chassis and certain electronic systems or appliances, have their own comprehensive, manufacturer supplied manuals or information sheets which describe the operation of these products in great detail. This manual will refer you to the manufacturer's information included in your Owner InfoCase whenever necessary.

We also urge you to read the complete Chassis Operating Guide provided by the chassis maker and all other operating information provided by our equipment suppliers and manufacturers. This is contained in your Owner InfoCase.

This manual should be kept in the vehicle at all times for personal reference. The operator's manual, InfoCase and chassis operating guide are to be considered permanent components of this vehicle. They should remain in the vehicle when sold to provide the next owner with important safety, operating and maintenance information.

SAFETY MESSAGES USED IN THIS MANUAL

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

DANGER

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

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WARNING

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

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, could result in damage mainly to equipment or property, but in some cases may also result in minor or moderate personal injury.

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

CHASSIS OPERATING GUIDE

Throughout this manual, frequent reference is made to the vehicle chassis operating guide. The chassis guide is the operator's manual provided by the manufacturer of the chassis on which this motor home is built (i.e., Ford). Consult the chassis guide for operating safety and maintenance instructions pertaining to the chassis section of the motor home.

OWNER INFOCASE

The materials in your Owner InfoCase contain warranty information and operating and maintenance instructions for the various appliances and components in your motor home. Warranty registration cards for these items should be filled out and mailed as soon as possible after you take delivery of your motor home. If you do not have operating instructions for a particular appliance, contact your dealer.

OPTIONS AND EQUIPMENT

This model is available in several sizes and floorplans, so accessories and components may differ slightly between models. Some equipment described in this manual may not apply to your coach.

PRE-DELIVERY INSPECTION

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

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

FRONT AXLE TIRE ALIGNMENT

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

BEFORE DRIVING

Before sitting in the driver's seat, always check around your vehicle to be sure you have proper clearance for maneuvering. If necessary, have a passenger help guide you out of a difficult parking space.

Although your coach features automotive conveniences like power steering and power

brakes, driving a motor home is different from driving a car. A motor home is larger and heavier than an automobile, so it requires more stopping and passing distance, and more parking and maneuvering space than does a car.

Always be aware of the size of your motor home. The added height of roof air conditioners, TV antennas or luggage boxes may cause clearance problems around some tunnels, canopies and hanging signs. Know the height of your unit so you can observe posted clearance limits.

Remember: Always use your seat belt and be sure your passengers do so as well.

SERVICE AND ASSISTANCE

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

If you need warranty repairs while traveling you may take your motor home to any authorized Winnebago or Itasca dealership and request their assistance.

See the dealership directory in your Owner InfoCase.

WARRANTY

Your new vehicle is covered by a factory warranty against defects in material and workmanship. This warranty should be validated immediately and returned to the factory by your dealer. For additional information, see your "New Vehicle Limited Warranty" included at the front of this manual.

REPORTING SAFETY DEFECTS

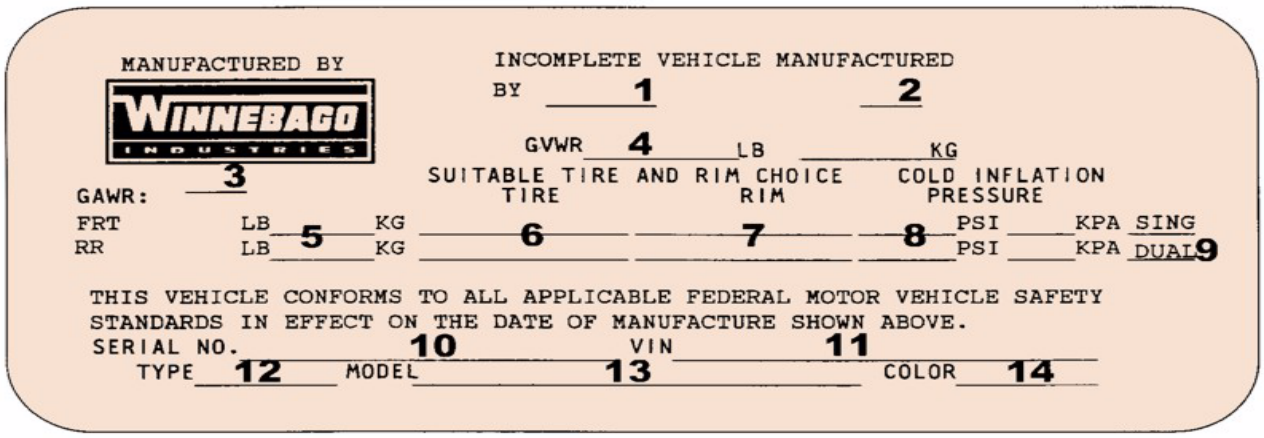
If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Winnebago Industries, Inc.

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

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, D.C. 20590. You can also obtain other information about motor vehicle safety from the Hotline.

VEHICLE CERTIFICATION LABEL

This label contains vehicle identification and other important reference information. This label is affixed to the lower inside panel of the driver door or on the door jamb.



Explanation of Data

1. Chassis manufacturer.
2. Chassis manufacture date.
3. Month and year of manufacture at Winnebago Industries.
4. Gross Vehicle Weight Rating: Total permissible weight of the vehicle, including driver, passengers, total cargo carried (including all liquids) and equipped with all options.
5. Gross Axle Weight Rating: Total permissible weight allowed for the front and rear axles (listed in pounds and kilograms).
6. Suitable Tire Choice: Tires recommended to meet handling and safety requirements. When replacing any of the tires on your vehicle, always replace with a tire that meets these specifications.
7. Suitable Rim Choice: Wheel rims recommended to meet handling and safety requirements. When replacing any of the rims on your vehicle, always replace with a rim that meets these specifications.
8. Cold Inflation Pressure: Inflation pressures at Gross Axle Weight Ratings recommended (while Cold) for the tires originally equipped on your vehicle. These pressure levels must be maintained to assure proper handling, safety and fuel economy.
9. Rear Axle Wheel Configuration: Single or Dual.
10. Serial Number: This is the serial number assigned to the completed vehicle by Winnebago Industries.
11. Vehicle Identification Number (VIN): This number identifies the chassis on which the motor home is built. The 10th digit of the VIN designates the chassis model year. (4=2004, 5=2005, etc.). This information is useful when ordering chassis repair parts.
12. Type: States the NHTSA designated usage classification for your motor home. MPV signifies a Multi-purpose Passenger Vehicle.
13. Model: Lists the Winnebago product model number of your vehicle.
14. Color: Signifies the color code number of the decor used throughout the vehicle. This number is necessary for ordering replacement cushions, curtains, carpet, etc.

SECTION 3 GETTING TO KNOW YOUR MOTOR HOME

Read and understand all instructions and precautions in this manual before operating your new motor home.

GENERAL WARNINGS

- Only seats equipped with seat belts are to be occupied while the vehicle is moving.
- Make sure all passengers have seat belts fastened in a low and snug position so the force exerted by the belt in a collision will be spread across the strong hip area. Pregnant women should wear a lap-shoulder belt whenever possible, with the lap belt portion worn low and snug throughout the pregnancy.
- All moveable or swiveling seats should be placed and locked in forward facing positions while the vehicle is moving.
- Never let passengers stand or kneel on seats while the vehicle is moving.
- Sleeping facilities are not to be utilized while vehicle is moving.
- Examine the escape window and be familiar with its operation.
- Inspect the fire extinguisher monthly for proper charge and operating condition. This should also be done before beginning a vacation or any extended trip.

DRIVING

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

FORMALDEHYDE INFORMATION

WARNING

Some components in this vehicle contain formaldehyde based adhesives which may release formaldehyde fumes into the air for an unknown period of time until total dissipation occurs. Individuals who are allergic to formaldehyde gas fumes may experience irritation to eyes, ears, nose and throat. Reaction in infants may be more severe. Although long range effects are not well understood, testing to date has not revealed any serious health effects in humans at the level of emission from these products.

CARBON MONOXIDE WARNING

WARNING

Avoid inhaling exhaust gases, as they contain carbon monoxide, which is a colorless, odorless and poisonous gas.

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

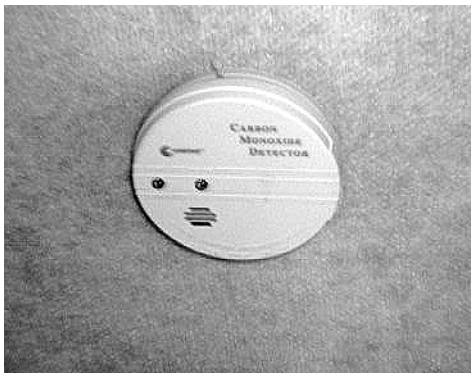
- Each time the vehicle is serviced for an oil change.
- Whenever a change in the sound of the exhaust system is noticed.
- Whenever the exhaust system, underbody or rear of the vehicle is damaged.

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

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

CARBON MONOXIDE ALARM

Your coach is equipped with a carbon monoxide (CO) alarm located on the ceiling in the bedroom area. The CO alarm is powered by a 9-volt battery and has a sensor that is designed to detect toxic carbon monoxide gas fumes resulting from incomplete combustion of fuel. It will detect CO gas from any combustion source such as the furnace, gas range/oven, water heater, refrigerator, chassis engine, and electric generator engine.



Carbon Monoxide Alarm

Monthly Testing

Press the TEST button on the face of the alarm at least monthly to check the function of the alarm and condition of the battery. If the alarm begins to beep every few seconds, the battery may be weak and needs replacement. (Press the TEST button to be sure before replacing the battery. If the alarm sounds, the battery may still be okay. If the alarm still beeps every few seconds, check the smoke detector also. The "low battery" warning beep is similar on many alarm devices, so the origin of this electronic sound can be deceiving.)

Further Information

Please read the information provided by the manufacturer, which is included in your Owner InfoCase. It includes information on precautions, operational testing, and battery/sensor replacement.

EMERGENCY EXITS

Instructions for operation are also located on a label on the glass for quick reference and for passengers who may not be familiar with the exit. Never remove or destroy this label.

⚠ WARNING

Use care when exiting emergency window, as broken glass may be present in the exit area.

Swing-Out Side Escape Window

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

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

Instructions for opening are also located near the latches for quick reference and for passengers who may not be familiar with the exit. Never remove or destroy this label.

Lift latch handles upward to open.
Escape Window

WARNING

This window should be kept closed while driving to avoid drawing dangerous exhaust gases into the vehicle.

Using Slider Windows As Emergency Exits

Most slider windows along the side of the motor home can also be used as emergency exits, should the need arise. To use the windows as exits, first slide the window open, then slide the screen open or push the screen material out, depending on window type.

FIRE EXTINGUISHER

A dry chemical fire extinguisher is located near the main entrance door.

We recommend that you become thoroughly familiar with the operating instructions displayed on the side of the fire extinguisher or in the information supplied in your Owner InfoCase.

We also recommend that you inspect the fire extinguisher for proper charge at least once a month in accordance with National Fire Protection Association (NFPA) recommendations as stated on the label.

If the charge is insufficient, the fire extinguisher must be replaced.

WARNING

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

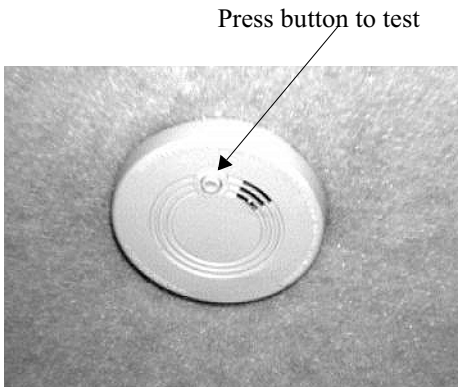
SMOKE ALARM

Your motor home is equipped with a smoke alarm located on the ceiling in the galley area. This alarm meets U.L. Standard 217 and NFPA Standard 74 for operation of smoke detection devices.

The following label is affixed either to the smoke alarm or on the ceiling near the smoke alarm.

⚠ WARNING

TEST SMOKE ALARM OPERATION AFTER VEHICLE HAS BEEN IN STORAGE, BEFORE EACH TRIP, AND AT LEAST ONCE PER WEEK DURING USE. FAILURE TO COMPLY MAY RESULT IN SERIOUS INJURY.



Smoke Alarm

See your Owner InfoCase for further information.

KEYS

Your motor home is supplied with several sets of keys. In addition to the chassis manufacturer's ignition key, you receive keys for the entrance door and exterior compartment doors.

Keys have an identification number, either a small metal tag or stamped into the key head. These numbers are recorded on the vehicle's component model/serial sheet which is included in your owner InfoCase. In case keys are lost or stolen, your dealer or a locksmith can provide you with duplicate keys or modify the locks.

KEYLESS ENTRY SYSTEM (Ford chassis supplied)

The keyless entry system is chassis supplied for the cab doors.

SEATS

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

To Recline the Seats

Lift the reclining lever, lean back to desired incline and release the lever. To return to the upright position, lift the lever and lean body forward. Allow the seat to return to the desired position and release the lever.

Seat Recline Lever

To Slide Seat Front-Back

Lift the seat adjustment bar and use body pressure to adjust the forward-rearward position of the driver seat. Release bar to lock seat in desired position.

Seat Position Adjustment Bar
(Lift to slide forward - back)

⚠ WARNING

Do not adjust driver's seat while vehicle is in motion.

After adjusting seat, always use body pressure to make sure slide and swivel locking mechanism have engaged.

If your model has a dinette seat located directly behind the driver or passenger front seat, the dinette seat back is hinged and can be folded down to allow full use of the front seat reclining feature. Simply remove the seat back cushion and unlatch the bolt latches on both sides of the dinette seat as shown, then fold downward.

Dinette Seatback Latch
(Remove cushion and unbolt to fold down

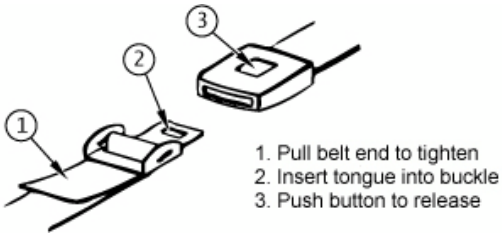
Dinette seat folds down to allow front seat reclining.

SEAT BELTS

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

Lap Belts

The lap belts must be worn as low as possible and fit snugly across the hip area. Always sit erect and well back into the seat. To gain full protection of the safety belt, never let more than one person use the same safety belt at any one time, and do not let the safety belts become damaged by pinching them in the doors or in the seat mechanism. After any serious accident, any seat belts which were in use at the time should be replaced.



Adjustment: To lengthen belt, turn tongue at a right angle to belt and pull to desired length. To shorten, pull loose end of belt.

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

To Release: Press button in center of buckle and slide tongue out of buckle.

⚠ WARNING

Snug and low belt positions are essential. This will ensure that the force exerted by the lap belt in a collision is spread over the strong hip area and not across the abdomen, which could result in serious injury.

Only seats equipped with seat belts are to be occupied while vehicle is in motion.

Lap-Shoulder Belts

Fastening: Hold the belt just behind the tongue using the hand nearest to the door. Next, bring the belt across the body and insert the tongue into the buckle until the latch engages.

Unfastening: Press the release button in the buckle. Hold onto the tongue when you release it from the buckle to keep it from retracting too rapidly.

When the lap-shoulder belt is in use, the lap belt must ride low across the hip area and the shoulder belt must ride diagonally over the shoulder toward the buckle.

The shoulder belt is designed to lock only during a sudden stop, sudden body movement or a collision. At all other times it will move freely with the occupant.

⚠ WARNING

Never wear the shoulder belt in any position other than as stated above. Failure to do so could increase the chance or extent of injury in a collision

NOTE: On some models, the shoulder belt height can be adjusted to provide the most comfortable position for each individual person's size. To adjust shoulder belt height, press the lever down, select the desired position and release the lever. A ratcheting mechanism will allow the belt to be pushed upward but not pulled downward.

Seat Belt Care and Cleaning

- Be careful not to damage the belt webbing and hardware. Take care not to pinch them in the seat or doors.
- Inspect the belts and hardware periodically. Check for cuts, frays, and loose parts. Damaged parts should be replaced. Do not remove or modify the belt system.
- Keep belts clean and dry. If the belts need cleaning, use only a mild soap and water solution. Do not use hot water. Do not use abrasive cleaners or bleach. These products may weaken or damage the belts.
- Replace any belt assembly that was used during a severe impact. Replace the complete assembly even if damage is not apparent.

CHILD RESTRAINTS

A properly installed and secured child restraint system can help reduce the chance or severity of personal injury to a child in an accident or during a sudden maneuver. Children may be injured in an accident if they are not seated in a properly secured child restraint.

A child restraint system is designed to be secured in a vehicle seat by a lap belt or the lap belt portion of a lap-shoulder belt. According to accident statistics, children are also safer when prop-

erly restrained in rear seating positions than in front seating positions.

When purchasing a child restraint system:

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

If your coach has a dinette, a child seat tether anchor loop is located in the floor of the coach directly behind the forward facing dinette seat. The dinette table must be in the lowered position when a child seat is in use.

MIRRORS - EXTERIOR

Always adjust mirrors for maximum rear visibility before driving off. Make sure the seat is adjusted for proper vehicle control and that you are sitting back squarely into the seat.

Side Mirror Head Adjustment

While sitting properly in the driver seat and the mirror arms extended normally, have a helper grip the mirror head by opposite upper and lower corners and move it horizontally and vertically for proper rearward vision.

NOTE: For power mirrors, be sure the power adjustment is in the middle of it's adjustable range, both up-down and right-left, before adjusting the head position.

LOADING THE VEHICLE

NOTE: Your motor home's load capacity is designated by weight, not by volume, so you cannot necessarily use all available space when loading your motor home.

- Store or secure all loose items inside the motor home before traveling. Possible overlooked items such as canned goods or small appliances on the countertop, cooking pans on the range, or free-standing furniture items can become dangerous projectiles during a sudden stop or evasive maneuver.
- Be aware of GVWR, GAWR and individual load limit on each tire or set of duals.

When loading the vehicle, distribute the cargo load equally so that you do not exceed either the Front or Rear Gross Axle Weight Rating (GAWR) or the Gross Vehicle Weight Rating (GVWR). The Gross Axle Weight Rating (GAWR) means the weight value specified by the chassis manufacturer as the load carrying capacity of a single axle system as measured at the tire-to-ground interfaces. This is the total weight a given axle is capable of carrying. Each axle has its own rating.

Have your vehicle weighed to determine the proper load distribution for your vehicle. Also distribute cargo side-to-side so the weight on each tire or dual set does not exceed one half of the GAWR for either axle.

For example, if the Front GAWR is 6,000 lbs., there should be no more than 3,000 lbs. on each tire. (If the left side weighs 3,100 lbs. and the

right side weighs 2,700 lbs., at least 100 lbs. of the load should be shifted from the left side to the right side.) The GVWR is listed on the Vehicle Certification Label. (See sample in Specifications Section).

The GCWR (Gross Combination Weight Rating) means the maximum allowable loaded weight of this motor home and any towed trailer or towed vehicle. If trailer towing is not recommended, the GCWR will equal the GVWR.

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

CAUTION

The weight of the loaded vehicle (including options, attachments, passengers, water, fuel, luggage and all other cargo) must not exceed the GVWR or GAWR of either axle.

Weighing Your Loaded Vehicle

To check the weight of your fully loaded coach, locate a commercial weighing scale that is capable of weighing large trucks.

Loading: Load your vehicle completely as if you were going on a long trip, with everything you would carry, including food, clothing, bedding, lawn chairs, etc., a full fuel tank, full LP tank, and a partial tank of fresh water - but empty holding tanks.

Finding a Scale: In urban areas, the most common places to find a public access scale are commercial truck stops. In rural areas, most grain storage elevators have scales available. If you don't know of a truck scale in your area, look in the Yellow Pages for entries such as Grain Elevators, Scales-Public, Truck Stops, Weigh Stations, etc. If you cannot locate a scale in your area, call your state DOT and ask for recommendations. Most scales charge a nominal fee for weighing a vehicle.

Weighing: There is typically a scale operator to direct you but the basic routine is to take three separate weights - front axle, whole vehicle, and rear axle. You will first drive only your front wheels onto the scale pad, then drive ahead so that the whole vehicle is on the scale, then finally pull off until just the rear wheels are on the pad.

Front GAWR (Front Axle Only)

GVWR (Both Front and Rear Axles)

Rear GAWR (Rear Axle Only)

You will receive a weight 'ticket' that states your current Front Gross Axle Weight, Rear Gross Axle Weight and Gross Vehicle Weight. You can compare these weights to the weight ratings listed on your Vehicle Certification Label to use as a guideline for future loading limits and weight distribution.

The gross weight of the vehicle should not exceed the Gross Vehicle Weight Rating (GVWR) specified on the Vehicle Certification Label. (see section 2). The front and rear axle weight also should not exceed the corresponding Axle Weight Rating specified on the Vehicle Certification Label.

Corner Weighing (Side-to-Side)

Weighing each corner of the coach separately (single L/R front wheels or L/R rear dual sets) is an accurate method to determine how to distribute your cargo to avoid overloading, especially on tires.

To determine the weight distribution on each tire or dual set, you will need to find a scale capable weighing side-to-side, or all four 'corners' of the vehicle, separately. A truck scale may be used if the ground is level with the scale surface and the scale has clearance to drive one side of the coach onto the scale as shown below.

Drive the coach on the level area next to the scale and straddle the scale so that only one side of the coach will be on the scale pad. Pull only the front wheel onto the pad as shown.

Weighing Left Front 'Corner'

When the front wheel has been weighed, pull the coach straight ahead until only the rear wheel/dual set is on the scale pad as shown.

Weighing Left Rear 'Corner'

After the rear wheel set has been weighed, turn the coach around and repeat this process for the other side.

The load on each wheel or dual-wheel set should not exceed one-half of the corresponding GAWR. For example, if the GAWR for the rear axle is 12,000 lbs., then the load on each rear dual set (left rear duals or right rear duals) should not exceed 6,000 lbs.

Tires should be filled to the recommended air pressure for the highest loaded tire set on that axle. For example, on the rear axle, if the left side weighs more than the right, fill the left tires to the pressure required for that weight, then fill the right tires to the same pressure as the left ones.

If your actual weight is considerably less than GAWR rating, you may be able to lower your tire pressure. See a tire dealer for a load/pressure chart.

NOTE: The Hitch Load from a Towed Vehicle or carrier box must also be counted on the Rear GAWR and subtracted from the rear axle cargo capacity.

Be aware that hitch load can affect handling characteristics. The more weight on the hitch, the lighter the front end will feel at the steering wheel.

Roof Loading

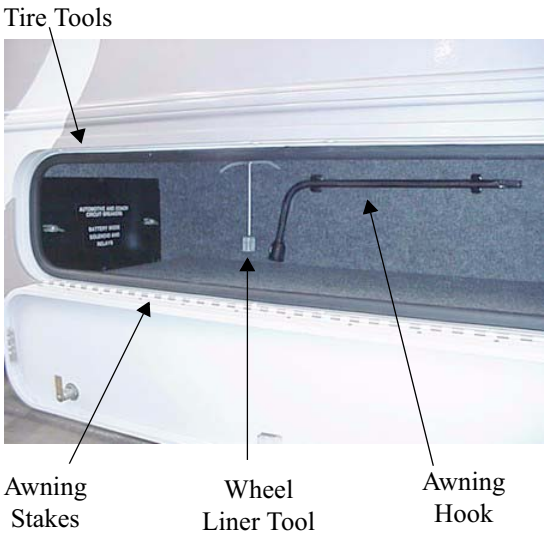
The roof is capable of carrying some lightweight articles while the vehicle is in motion. A roof-mounted luggage carrier designed for this purpose is available from your dealer. However, roof load while the vehicle is in motion is not to exceed 10 pounds per square foot or a maximum of 100 pounds.

When the vehicle is stationary, a cargo load of 100 pounds plus the weight of a 225 pound person to load the cargo or to conduct inspection and maintenance is permissible.

Weight added to both the roof and the trailer hitch contribute to the gross vehicle weight, which must not exceed the vehicle's GVWR.

TOOL STORAGE

Various supplied tools are stored in clips on the walls of one or two of the exterior storage compartments. Actual locations depend on storage compartment configuration of your model. The photos following show typical arrangements.



STORAGE COMPARTMENT DOORS

To ensure that exterior storage compartment doors have latched properly, press firmly on the bottom edges of the doors with the palms of your hands. If the door is ajar you will hear and feel a loud 'click' when the latches engage properly.

The high-density gaskets used on the exterior storage compartments are designed to provide a more positive seal against dust and weather. Sometimes this seal firmness can inhibit complete latching of the compartment doors if they are simply 'dropped shut' or closing force is applied only to the center of the door.

MOUNTAIN DRIVING

Special techniques must be used when driving in mountainous or hilly country.

Climbing A Hill

The transmission will automatically downshift as needed to climb most hills. If the hill is long or very steep, however, you may need to manually shift to a lower gear to keep the transmission from repeatedly upshifting and downshifting. Select the lowest adequate gear range for the duration of the incline. See your chassis operating guide for specific information.

CAUTION

Observe the engine temperature gauge more frequently than normal. If overheating occurs, pull off to the side of the road and allow the engine to thoroughly cool before refilling the radiator and restarting the engine.

Descending A Hill

When going down a long grade, you may need to manually shift to a lower gear rather than keeping your foot on the brake pedal. A lower gear will allow the engine to provide a degree of braking action. Holding your foot on the brake pedal for an extended period may cause brakes to overheat, which could cause you to lose control of the vehicle. See your chassis operating guide for specific information.

EFFECTS OF PROLONGED OCCUPANCY

Your motor home was designed primarily for recreational use and short term occupancy. If you expect to occupy your coach for an extended period, be prepared to deal with condensation and humid conditions that may be encountered.

HUMIDITY AND CONDENSATION

Moisture condensing on the inside of windows is a visible indication that there is too much humidity inside the coach. Excessive moisture can cause water stains or mildew which can damage interior items such as upholstery and cabinets.

When you recognize the signs of excessive moisture and condensation in your coach, you should take immediate action to minimize their affects.

You can help reduce excessive moisture inside the motor home by taking the following steps:

Ventilate with Outside Air

Partially open one or more windows and a roof vent to circulate outside air through the coach. In cold weather, this ventilation may increase use of the furnace, but it will greatly reduce the condensation inside the coach.

Minimize Moisture Released Inside the Coach

Run the range hood fan while cooking, and open a bath vent while bathing or showering to carry water vapor out of the coach. Avoid making steam from boiling water excessively or letting hot water run. Avoid bringing extra moisture into the coach by way of soaked clothing or snow on shoes. Do not hang-dry wet overcoats or clothing inside the coach.

PREPARING VEHICLE FOR STORAGE

Properly preparing your vehicle for storage will lessen the possibility of damage to your vehicle. Prepare the motor home for vacancy just as you would if you were leaving your house for an extended period:

Clean and Prep Coach for Storage

1. Turn off the LP gas tank.
2. Turn the furnace thermostat switch OFF.
3. **Remove all foods and items that may cause odors from cabinets and refrigerator.**
4. Clean and defrost the refrigerator. Prop the door open slightly to allow any odors to dissipate. Place an open box of baking soda inside the refrigerator to help absorb odors.
5. **Fully charge the batteries. Batteries must have at least 80% charge to survive freezing temperatures and long period of non-use.** We recommend that you connect a battery charger or plug in the shoreline once a month during long-term storage periods to maintain battery charge and to avoid sulfating. If connecting a charger directly to batteries, turn the Aux. Battery switch off to avoid electrical arcing when attaching and detaching charger clamps.
6. After charging batteries, turn the Aux. Battery Switch off to disconnect the batteries and avoid parasitic* drain.
7. Have the vehicle chassis completely serviced and lubricated. Be sure radiator antifreeze protection level is sufficient for the lowest anticipated temperatures.
8. Wash and wax the coach.
9. Inspect all seams and seals around doors, windows, vents, and any other joints. Replace or repair any that are damaged. Sealing materials and compounds can be purchased from your dealer. Badly damaged weather seals may need to be replaced by your dealer.
10. Close all windows and roof vents. Protect all appliance vent openings from contamination by animals or insects (e.g. bird nests, wasp nests, etc.)
11. Lubricate all door hinges and locks.
12. Clean the interior of the coach. Dirt and stains are more easily removed when fresh.

NOTE: We do not recommend leaving the shoreline plugged in continuously during storage periods because the batteries can lose electrolytic fluids and become damaged from continuous charging without periodic use. We recommend following regular battery inspection and maintenance, especially in cold weather. See "Battery Storage and Maintenance" in section 9.

**Parasitic battery drain is the gradual drain by items connected directly to battery power such as clocks and radio memory.*

When storing your vehicle through the winter, or in cold climates, extra preparations need to be made to protect systems that can be damaged by freezing temperatures. See "Winterizing" in Plumbing Section.

REMOVAL FROM STORAGE

1. Completely air out the motor home.
2. Have the entire LP gas system checked for leaks.

3. Check window operation.
4. Check cabinet and door hinges. Lubricate with penetrating oil, if necessary.
5. Close all faucets and drain valves that are open. If necessary, reconnect toilet water line and close flush valve.
6. Add a few gallons of water to the fresh water tank and check for leaks especially at junctions. Also make sure all hangers and supports are securely in place. Sanitize the water system as outlined under “Disinfecting the Fresh Water System” in Plumbing Section.
7. Check operation of all faucets to be sure faucet washers have not hardened during storage.
8. Check sealing valve in the toilet for proper operation and lubricate with silicone spray.
9. Add water to the holding tank using the toilet flush pedal. Check to be sure dump valve seals tightly.
10. Check around all appliances for obstructions and ensure that all vent openings are clear.
11. Start refrigerator and check for proper cooling.
12. Clean paneling and counter surfaces.
13. Replace batteries if necessary and check out electrical system to make sure all lights and electrical components operate.
14. Check tires for proper cold inflation pressure. See Vehicle Certification Label on sidewall near driver’s seat.
15. After washing accumulated winter grime from the vehicle, it is important to carefully inspect the seams and sealants for separation or cracks that may have appeared around the window frames, vents and any other joints. Re-sealing is quite simple and the material is quickly and easily applied. Appropriate compounds are available from your dealer. Also inspect weather seals around doors, etc., and if necessary, have a dealer replace immediately.

SECTION 4 ROADSIDE EMERGENCY

IF YOU GET A FLAT TIRE

When you experience a tire failure, it creates a side force that pulls the vehicle in the direction of the failed tire. Unfortunately, many people make the situation worse by slamming on the brakes and swerving into another traffic lane. You can control the vehicle with smooth, deliberate maneuvers.

- DO NOT panic.
- DO NOT stomp on the brake. This abruptly shifts the vehicle's weight forward, making it nose-dive and pull toward the blown-out side.
- DO NOT jerk your foot off the accelerator. Just ease back on the accelerator slowly and gently to continue momentum. The deflated tire will slow down the vehicle.
- Try to steer the vehicle as straight as possible and avoid quick maneuvers that could cause the vehicle to go into a spin or rollover. You may need to counter-steer to compensate for "pull" created by the failed tire.
- Let the vehicle coast to a stop, gently steering to a safe stopping place. Don't worry about damaging the wheel rim by driving on it. A wheel replacement is cheaper than damaging the vehicle or injuring yourself.
- Activate your hazard flashers to warn other motorists, then exit the vehicle carefully.
- Set out flares or other warning devices.

Check your tires for proper inflation before each trip and at least once a month with an accurate tire gauge.

Emergency Road Service

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

Spare Tire Storage

22' Models:

The spare tire is fastened to a carrier bracket on the backwall of the coach.

WARNING

Tire is heavy. You may need assistance to lower safely to ground.

- Remove the tire cover.
- Remove the 2 nuts and retainer plate that holds the wheel to the bracket.
- Carefully remove wheel from bracket studs.

24'- 32' Models:

The spare tire is fastened to a swing-down carrier beneath the rear of the coach.

WARNING

Do not lie beneath tire carrier while removing tire. The tire and carrier assembly are heavy.

- Support tire carrier with a jack or block while removing wire pin and wing nut from bolt at front of carrier.
- Carefully lower tire carrier to ground.
- Remove 2 bolts and retainer plate that hold wheel to carrier bracket.
- Lift or slide tire from carrier.
- Do not over-tighten wing nut when returning carrier to storage position.

RECOVERY TOWING

When calling a professional towing service, we recommend that you advise them of your coach length and approximate front axle weight. This will allow the towing operator to determine the proper towing equipment to use. (This information is found on the vehicle certification label located to the left of the steering wheel.)

We recommend that you ask for an underlift (wheel lift or frame lift) type towing assembly for safe towing.

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

NOTE: Consult the chassis operating guide for any additional towing instructions or precautions provided by the chassis manufacturer.

CAUTION

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

WARNING

Stay out from beneath the motor home while it is suspended by the towing assembly unless the vehicle is adequately supported by safety stands. Do not allow passengers to occupy a towed vehicle.

JUMP STARTING

If your coach will not start from the automotive batteries, try using the battery/boost switch to divert power from the coach batteries to the starter. (See Battery Boost Switch in Section 5). If you wish to try jump starting the engine using another vehicle or booster system, see your chassis owner's manual for connecting jumper cables to the automotive electrical system.

WARNING

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

ENGINE OVERHEAT

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

WARNING

Operating a vehicle under a severe overheating condition can result in damage to the vehicle and may result in personal injury.

For information on what to do in case of overheating, consult your chassis operating guide.

SECTION 5 DASH / AUTO

INSTRUMENT PANEL GAUGES AND CONTROLS

See your chassis owner's manual for detailed information on the instrument gauges, steering column controls, brakes, and other chassis equipment.

NOTE: Some equipment or controls shown may be optional or unavailable on your model.

HEADLIGHT BEAM CHANGE AND TURN SIGNALS

Move multi-function lever upward for right turn signal and downward for left turn signal.

Pull end of handle toward you to switch high beam to low, or low beam to high.

WINDSHIELD WIPERS AND WIPER DELAY

See your Ford chassis operating guide for complete operating information.

HAZARD WARNING FLASHER

The hazard warning flasher provides additional safety when the vehicle must be stopped on the side of the roadway and presents a possible hazard to other motorists. When the flasher is on, it serves as a warning to the other drivers to approach and overtake your vehicle with caution.

The front directional signals and the taillights will flash intermittently when the flashers are in operation. The hazard warning flashers will not operate when the service brake pedal is depressed. The turn signal will not operate when the flashers are on. When it is necessary to leave the vehicle, the flasher system will continue to operate with the ignition key removed.

CRUISE CONTROL

The electronic speed control (cruise) allows you to maintain a steady speed and relieve driving strain while traveling long distances.

See your chassis operator manual for complete instructions and precautions on the cruise control.

WARNING

Do not operate the cruise control on icy or extremely wet roads, winding roads, in heavy traffic, or in any other traffic situation where a constant speed cannot be maintained.

REARVIEW MONITOR SYSTEM - Optional

The compact rearview monitor is mounted into the driver side sun visor.

The push button POWER switch has two modes - On and Standby.

The Standby position switches the display to an inactive ‘sleep’ mode that will ‘wake up’ whenever the transmission is shifted into Reverse.

The ON position makes the display visible when the ignition key is on, whether parked or traveling down the road, for you to monitor your tow vehicle or rear traffic.

The screen brightness is adjusted using the two buttons ‘+’ brighter and ‘-’dimmer.

If your motor home is equipped with this optional system, refer to the Owner InfoCase for further instructions provided by manufacturer.

COMFORT CONTROLS

Controls for the air conditioner, heater, defroster and vent are all combined into one control panel. Refer to the following instructions for use of individual controls.

Temp Control

Mode Control

FAN SWITCH - Smallest dot is lowest air movement; Largest dot is maximum air movement. Fan will run at set speed when mode knob is in any position except Off. When mode knob is set to Off, the fan will not run.

TEMP CONTROL - Blue = Cold / Red = Warm

Mode Selector Positions:

Max A/C - Cab air is recirculated (and re-cooled) through air conditioner.

Norm A/C - Directs outside air through air conditioner cooling fins to reduce cab temperature.

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

Vent - Directs outside air through dash vents. Incoming air temperature can be adjusted using temp control knob, although cooling is limited to a few degrees above ambient outside air temperature.

Floor - Directs most air to floor vents and small amount to windshield defrost vents.

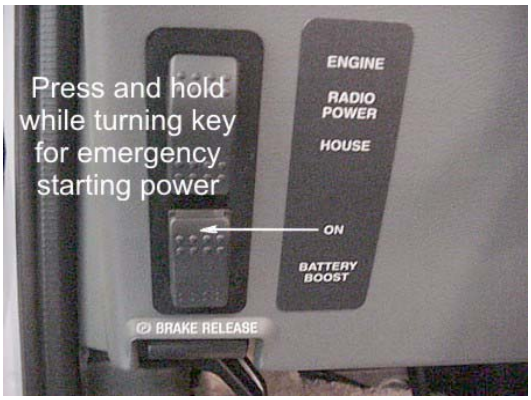
Mix - Splits air between floor and windshield defrost vents.

Def - Directs most air to windshield defrost vents and small amount to floor vents.

Off - When no heating, cooling or ventilation are required; closes all air dampers and turns fan off.

BATTERY BOOST SWITCH

This switch can be used to provide emergency starting power from the motor home auxiliary battery if the automotive battery is dead.



If engine battery is dead, press and hold while turning ignition key for emergency starting power.

IN-DASH RV RADIO™

The RV Radio™ in your coach can receive AM/FM stereo and Weather band stations. It also has both cassette and compact disc (CD) players for your listening enjoyment through quality high-output speakers located in several areas of the coach.

Please refer to the RV Radio™ manufacturer's operating guide in your Owner InfoCase for detailed instructions on programming preset station buttons and using this full-featured radio/audio system.

Radio Remote Controls

A steering wheel mounted remote control for the RV Radio lets you change radio stations or CD selections without taking your eyes off the road or hands off the wheel. See the RV Radio owners guide in your Owner InfoCase for remote control instructions.

An additional hand-held remote allows these same conveniences for the passenger. The hand-held radio remote is in your owner InfoCase.

Radio Power Switch

The radio power switch lets you connect the dash radio to the coach batteries with the ignition switch turned off for listening while parked. This prevents accidental draining of the chassis (starting) battery with prolonged use of the radio.

SECTION 6 APPLIANCES & EQUIPMENT

NOTE: Some items described in this section may be optional and, therefore, may not be in your vehicle.

The appliances installed in your motor home are manufactured by reputable RV appliance makers and have been tested by independent laboratories to meet all applicable standards and codes set for RV appliances. These appliances are covered by your New Vehicle Limited Warranty. (Certain items may be covered by individual manufacturer's warranty.) See your New Vehicle Limited Warranty for details.

REFRIGERATOR

The refrigerator in your coach can be operated from either of two power sources available to the motor home:

- 110-Volt AC electric
- LP gas

The refrigerator is an absorption type which uses an ammonia-water solution for cooling. Basically, ammonia vapor is distilled from the solution by heat, produced from either LP gas or electricity, and then carried to the finned condenser where it liquefies. The liquid then flows to an evaporator where it creates cold temperatures through evaporation.

CAUTION

To prevent permanent damage to the refrigerator cooling unit, turn the refrigerator off if the vehicle will be parked on an incline of over 3° side-to-side or 6° front-to-rear (such as steep driveways or parking lots, etc.) for more than one hour.

Leveling

Before operating the refrigerator when the motor home is stationary, place a small level on the freezer plate and make certain the unit is level.

Normal vehicle leveling to provide comfort for the occupants is satisfactory for refrigerator operation. This will be well within the operation limits of 3° off-level side-to-side and 6°off-level front-to-back.

Operating Instructions Models with Electronic Auto Mode Control

Start-Up Instructions - Gas Mode

The control panel is located between the freezer compartment and fresh food compartment. It contains mode and temperature switches and LED indicators. The On and Gas indicators illuminate to indicate the refrigerator's operating mode.

The above switch turns the refrigerator On or Off. If the switch is slid to AUTO, it will turn the refrigerator On and run in automatic mode.

The temperature selector switch controls the refrigerator and freezer temperature during both gas and electric operation. Slide the switch to select the desired temperature setting.

When set to AUTO mode, the refrigerator will automatically use 110-volt power if the shoreline is plugged in or generator running. If 110-volt power is not available, the refrigerator will automatically switch to run on LP gas.

NOTE: The power cord must be plugged into the generator receptacle for generator operation.

If an operating mode is not functional, its corresponding indicator will flash and the refrigerator will attempt to operate in a lower power priority source. If a lower power priority source is not available, the indicator will continue to flash, and the refrigerator will cease operation until the energy source is corrected. Refer to the "Diagnostic" section of the "Refrigerator Operator's Guide" in your Owner InfoCase.

Auto and Manual Modes - Gas Operation Only

If the gas does not ignite within 30 seconds, which may occur on initial start-up, the refrigerator's gas valve will automatically close and the operating controls will select an alternate power source (AUTO Mode) or revert to a stand-by mode in which the GAS indicator flashes. The indicator continues to flash until the refrigerator is turned OFF and then ON. If the gas does not ignite after several attempts, check the input gas supply, or consult with your dealer or an authorized service center.

Backup Operating System ("BOS")

Your refrigerator features a Backup Operating System which keeps the refrigerator cool in the event of a failure of the refrigerator's operating controls. If a failure occurs, the TEMP SET LED flashes and refrigerator switches to the BOS mode. This mode provides refrigeration until the refrigerator is serviced. The fresh food and freezer compartment temperatures should be monitored to prevent over-freezing or thawing of refrigerator contents when operating in the BOS mode. If the refrigerator temperature is too cold, adjust the thermostat to the left in single LED increments. If the refrigerator temperature is too warm, adjust the thermostat to the right in single LED increments. Let the refrigerator operate at the new setting for one hour before rechecking the freezer and fresh food compartment temperatures. (Frequent door opening prevents the temperatures from stabilizing.) Although the refrigerator can operate in this mode, have refrigerator serviced to restore manual operation as soon as practical.

Operating Tips

- The refrigerator should already be cold before placing items in it.
- Food and beverages should also be cold before placing in RV refrigerator. Never put warm or hot items in a cold refrigerator.
- Do not pack the refrigerator too full. The refrigerator needs room for cold air to circulate.

- Use smaller containers for each item. (e.g. a half gallon container of milk instead of a half-full gallon jug)
- Always put foods, especially liquids, in tightly sealed containers.
- Use crumpled paper between loose items to reduce rattling or "clinking" noises.

Further Information

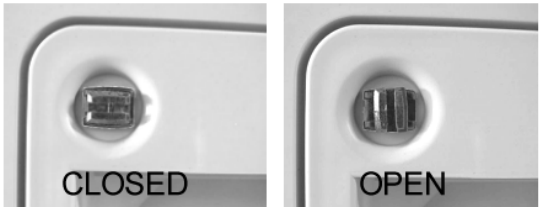
For further information and operating cautions, see the refrigerator operating instructions included either inside the refrigerator or in your Owner InfoCase.

REFRIGERATOR COMPARTMENT (Exterior)

The exterior refrigerator compartment allows access to the rear of the refrigerator for inspection, maintenance and service.

To Open:

1. Use a screwdriver or coin to turn the latch knobs to the vertical position as shown.
2. Remove the door from the opening.



Refrigerator Access Door Latches

To Close:

1. Replace the door into the opening.
2. Push the latch knobs in while turning to the horizontal position as shown.

RANGE AND OVEN

The range and oven in your motor home are operated on LP gas and will provide nearly all of the functions that the range in your home does. The range has a "Pilot Off" position on the oven control which allows the oven pilot to be turned off when traveling or refilling the LP tank.

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

⚠ 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 on exhaust fan.
2. Open window

FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

Unlike large homes, the oxygen supply inside a recreational vehicle is limited due to its size. To avoid danger of asphyxiation, provide proper ventilation when using the gas rangetop or gas oven. It is especially important not to use the gas oven and range top for comfort heating. Danger of asphyxiation is greater when these appliances are used for long periods of time.

WARNING

Portable fuel-burning equipment including wood and charcoal grills and stoves, should not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.

Lighting Range Top Burners

1. Rotate the Top Burner IGNITOR knob clockwise (in direction of 'Lite' arrows) to provide ignition spark at burners.

2. While rotating the IGNITOR knob, turn the desired Burner Knob to the LITE position.

3. When the burner lights, release the Ignitor knob and turn the Burner Knob to the desired flame height.

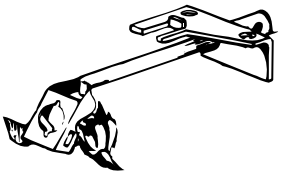
WARNING

Do not turn burner control knob to "On" and allow gas to escape before turning ignitor knob.

Lighting Oven Pilot

NOTE: If range has not been operated for a long period of time, a longer waiting period for ignition of the pilot may be necessary due to air in the gas line.

1. Be sure all valves are in the "OFF" Position. The oven control knob should be in "OFF" position.
2. Turn on LP tank supply valve.
3. Press and turn control knob to the "PILOT ON" position. This will allow gas to oven pilot.
4. Open oven door and light oven pilot with a match. Small flame will be noted at the top of the pilot burner.



Lighting oven pilot (when pilot is located on left side of burner.)

Operating Oven Control

Push in and turn the oven control knob (counterclockwise) to the desired temperature setting.

There is a delay of about 45 seconds before the main burner ignites. This is normal and there is no gas escaping during this delay. It is also normal for the oven burner flame to cycle off and on at all temperatures except broil (BR).

Shut Down Instructions

When you are done using the oven, turn the knob to "Pilot On" position - not Off.

The Pilot On position will turn off the main oven burner but leave the oven pilot burning. The "Off" position will shut down the pilot light so you would have to relight it before using the oven again.

Turn the knob to the Off position and close the main LP tank supply valve to shut the pilot light down while the vehicle is in motion and during storage periods.

MICROWAVE OVEN

For complete operating instructions, refer to the manufacturer's information provided in your Owner InfoCase.

RANGE HOOD

The range hood vent draws cooking odors and airborne grease particles into the filtration grid and recirculates the air or vents it to the outside of the coach depending on model. A light on the underside of the hood provides better illumination for food preparation. See the manufacturer's information for instructions on replacement of light bulbs and grease filter elements.

Hood Fan and Light Switches

To turn on the range hood light, simply press the switch labeled "Hood Light". To operate the range hood fan, press the "Hood Fan" switch.

SYSTEMS MONITOR PANEL (Wall Mounted)

The Systems Monitor Panel provides a convenient central location for checking the condition of all utility systems in your coach. At the touch of a button this panel will display the fresh water and holding tank levels, LP gas tank level, plus the coach battery condition. You can start the auxiliary generator or turn on the water pump and water heater. Indicator lights tell you if the water pump is on or if the water heater pilot light is out.

Water And Holding Tank Levels

Press and hold the "Levels Test" switch to show approximate level on the monitor lights.

These approximate water levels are measured by electronic sensors on the sides of the tank. There is generally more water in a tank than indicated on the monitor panel.

For example, if the water level is 1-2" below the FULL sensor, the monitor will show the level to be only 2/3 even though the tank is nearly full. If the water level is below the 1/3 sensor, the monitor will register an empty tank even though there may actually be some water left in the tank. However, when the indicator reads FULL, the tank is actually full.

Tank Capacities

See "Capacities" page (1-1) at the front of this manual.

LP Gas Level

Press and hold the "Levels Test" switch to show approximate LP tank level.

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

Water Pump Switch

When use of the self-contained water system is desired, turn the "Water Pump" switch on. The "Pump On" light will illuminate when the pump switch is on and the system is operable. Water will be available as soon as a faucet is opened. Refer to "Water Pump" on page 10-1 for additional information on the water pump and initial start-up. (There is also a pump switch in the water system compartment on the outside of the coach.)

Battery Charge Meter

Push the "Levels Test" button to check the level of charge (voltage) in the 12-volt coach battery. The colored segments (red, yellow and green) will light from the bottom up to the amount of charge the battery contains.

* Green - good or adequate charge.
* Yellow - marginal charge.
* Red - battery needs charging before use.

To get an accurate reading;

1. Both the chassis engine and the auxiliary generator engine must be shut off and 110 Vac shoreline unplugged.
2. An interior light should be turned on to provide a small load which draws off the battery surface charge.

WATER HEATER
Direct Ignition Models

1. Place Water Heater switch in the "On" position. The switch and "Pilot Out" light are located on the monitor panel.

2. If "Pilot Out" light stays on longer than 15 seconds, place switch in "Off" position and wait 5 minutes.
3. Repeat step one.
4. If heater fails to operate due to high water temperature, the heater will go into a lockout condition ("Pilot Out" light on). When water cools, reset by placing switch in "Off" position for at least 30 seconds, then return to "On" position.
5. If a lockout condition persists contact your dealer.
6. For complete shut-down before servicing:
   a) Place Water Heater switch in "Off" position.
   b) Remove red wire from left-hand terminal of ECO switch (ECO to valve).

Water Heater Switch and "Pilot Out" Indicator

Be sure the water heater is filled with water before pressing this switch. To fill the water heater, turn the water pump switch on and open a hot water faucet until water begins to flow.

The "Pilot Out" light will glow for about 10-15 seconds after the water heater switch is turned on, then it will go off.

If the "Pilot Out" light comes on during normal operation, it means that the burner has gone into "lockout" mode. Turn the switch off for about 5 minutes, then turn back on.

Pressure-Temperature Relief Valve

On occasion, water may be seen seeping from the water heater pressure temperature relief valve. This is no cause for repair or replacement of the valve.

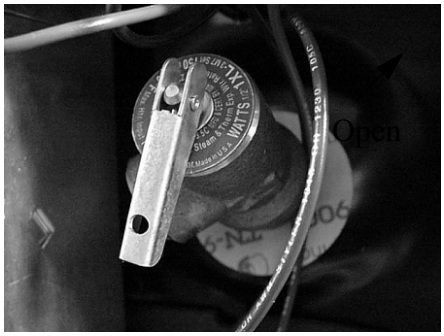
Water Heater Exterior Service Access

Normally there is an air gap at the top of the water heater tank which acts as a pressure buffer. In time, however, heated water may expand and fill this air gap, causing a slight increase in water pressure. This may cause the P-T valve to "weep" until the air gap is manually replaced.

⚠ CAUTION

Operate this valve only when the water heater is cold!.

To Replace the Air Gap:
1. Turn off the water heater switch and incoming water supply (city water and/or demand pump).
2. Open a faucet in the motor home to relieve water pressure.
3. Pull the handle of the P-T valve straight out and allow water to flow until it stops.



Lift handle straight out to open P-T valve

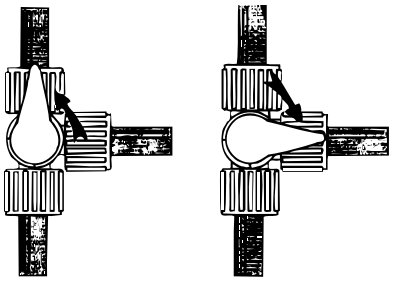
4. Let the handle of the P-T valve snap shut.
5. Close the faucet and turn on the water supply before switching the water heater on.

Manually operate the pressure temperature relief valve at least once a year.

Water Heater By-Pass Valve

Your coach may be equipped with a water heater by-pass valve for easier winterization of water lines using RV antifreeze. See page 10-8 for valve location.

Turn the handle as shown to either by-pass or flow through the water heater.



Normal Flow — By-Pass Mode

CAUTION

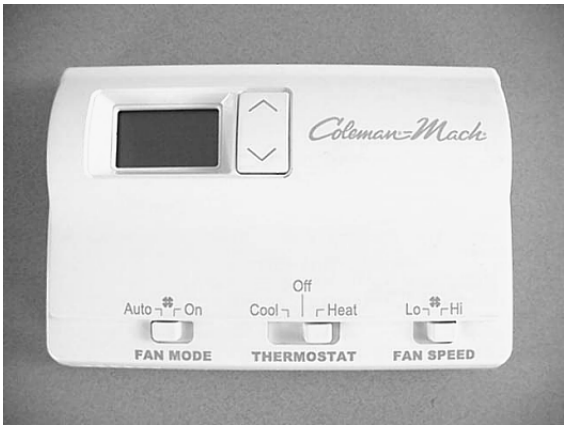
Leave by-pass valve handle in NORMAL FLOW position if draining water and blowing out water lines. Place in BYPASS position ONLY when using antifreeze solution in water lines.

SECTION 7 HEATING & AIR CONDITIONING

LP GAS FURNACE

Start Up:

1. Open the LP gas tank valve by turning fully counterclockwise.



2. Move thermostat switch from OFF to HEAT and press the Temp Selector button (Up/Down arrows) until the desired temperature is shown on the display.
3. Furnace fan will start to blow soon after setting thermostat.
4. After about 30 seconds, the furnace burner will light.
5. The furnace will now cycle off and on automatically as the thermostat demands just like a household furnace.

NOTE: If heat does not come out of the heat ducts after a minute or so the burner is not lit. Turn thermostat off for 3-5 minutes, check to be sure tank valve is open and tank is not out of fuel, then try steps 2-4 again. If it still will not light after three attempts, go to Shut Down steps and contact your dealer or a local RV service center.

To Shut Down:

1. Slide thermostat switch to OFF position.
2. Close LP tank valve.

NOTE: Metal coatings used during manufacture of the furnace burner parts may smoke when the furnace is used for the first time, which may also set off your smoke alarm. If this happens, provide adequate ventilation of the smoke to avoid a nuisance smoke alarm at this time. We do not recommend removing the smoke alarm battery. If it were inadvertently left disconnected, the smoke alarm would be inoperative.

Further Information

Please see the furnace operating instructions provided in your Owner InfoCase for further information, including operating precautions, and periodic maintenance. See the Coach Maintenance Schedule at the back of this manual for recommended intervals.

OPERATION

The following chart shows the system functions with the "Heat/Cool" thermostat. Disregard references to heat functions when using the "Cool Only" thermostat in the rear bedroom.

■ Switch position —■— Switch position does not matter or is inactive for this feature

FAN MODE SWITCH		THERMOSTAT SWITCH				FAN SPEED SWITCH		WHAT HAPPENS
Auto	On	Cool	Off	Gas*	Elec*	Lo	Hi	
			■					If the Thermostat Switch is Off, the whole heating and cooling system is off– nothing is happening.
								Gas Furnace Heating:
—■—	—■—			■		—■—	—■—	Furnace Blower runs along with the LP Gas Furnace which turns on and off as needed according to thermostat setting.
								Heat Pump Heating:*
■					■	—■—	—■—	A/C Fan runs at Low Speed along with the Heat Pump which turns on and off as needed according to thermostat setting.
	■				■	—■—	—■—	A/C Fan runs continuously at Low Speed while the Heat Pump turns on and off as needed according to thermostat setting.
								A/C Cooling:
■		■				■		A/C Fan runs at Low Speed along with the Air Conditioner which turns on and off as needed according to thermostat setting.
■		■					■	A/C Fan runs at High Speed along with the Air Conditioner which turns on and off as needed according to thermostat setting.
	■	■				■		A/C Fan runs continuously at Low Speed while the Air Conditioner turns on and off according to thermostat setting.
	■	■					■	A/C Fan runs continuously at High Speed while the Air Conditioner turns on and off according to thermostat setting.

***Note**: These instructions include the optional heat pump, which may not be equipped on your model. If you do not have a heat pump, the Thermostat Switch Gas position is the same as the Heat position on your thermostat– in this case, ignore the Elec Heat switch settings which apply to the heat pump only.

HEAT PUMP - Optional

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

A heat pump can be thought of as an air conditioner running in reverse. An air conditioner absorbs heat from the air on the inside of the coach and moves it to the outside. The heat pump does exactly the opposite. Even cold air contains some heat, so a heat pump will extract heat from the outside air on a cold day and carry it to the inside of the coach to maintain a comfortable temperature.

The efficiency of a heat pump decreases as the outdoor air temperature drops, so supplementary heat is often needed when the outside temperature nears freezing. This system is set to automatically start the LP gas furnace to assist the heat pump if room temperature cools to 5 degrees or more below the thermostat set temperature. You may wish to manually switch to furnace heat to maintain a higher temperature when outside temperatures begin to reduce the efficiency of the heat pump. The heat pump will not operate when the outside temperature falls below 36 degrees F.

To Operate the Heat Pump:

- Slide the Thermostat switch to Electric heat mode.
- If the inside temperature is 5 degrees or more below the thermostat set point, both the heat pump and the furnace will run initially to bring the interior temperature up to the set point as quickly as possible. (If the inside temperature is 4 degrees or less below the set point, then only the heat pump will run initially.)
- When the thermostat is satisfied, the heat pump and furnace will both shut off.
- When the thermostat calls for heat again, only the heat pump will run. The heat pump will remain the sole heat source unless it cannot maintain the inside temperature. If the inside temperature falls five degrees below the set point, the furnace will assist the heat pump until the set point is reached.

If the furnace must assist the heat pump three times in a row, the thermostat will shut down the heat pump for two hours and the furnace will take over as the heat source. After two hours the heat pump will become active again and try to be the primary heat source.

Gas Heat = Gas Furnace
Electric Heat = Heat Pump
Cool = Roof Air Conditioner

Have You Checked Your Air Filter Lately?

Closed or blocked vents and a dirty air filter can hinder the efficiency of a heat pump.

- Be sure ceiling vents are open to distribute heat pump output air.
- The filter washable foam should be checked monthly for dirt build-up and cleaned or replaced as needed. It is located in the ceiling mounted return AC grille in the lounge area.

DUCTED ROOF AIR CONDITIONING SYSTEM

The furnace thermostat also controls ducted roof air conditioner operation when the thermostat switch is placed in 'cool' position.

NOTE: The thermostat is equipped with a replaceable 2 Amp fuse located on the back of the thermostat body.

Refer to the manufacturer's information in your Owner InfoCase for complete operating instructions.

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

All cooling functions controlling to setpoint have a short cycle protection time delay of 3 minutes. There will be no delay if the cycle OFF time exceeds 3 minutes.

SECTION 8 LP GAS SYSTEM

LP GAS SUPPLY

The LP gas system supplies fuel for the range, water heater, furnace and refrigerator (while in gas mode). When used and handled properly, this system is safe and economical and provides modern living conveniences wherever you travel.

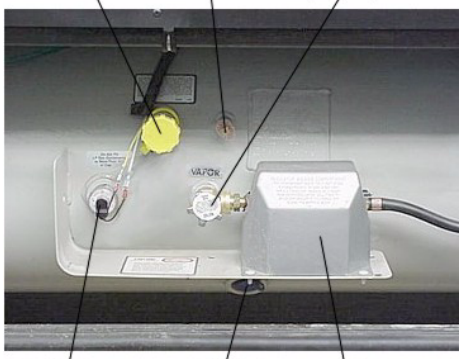
How LP Gas Works

LP (Liquified Petroleum) gas is a true gas compressed into liquid form for easy transportation and storage. LP gas is available in two types - propane and butane. It is also called tank gas, bottle gas, or simply LP.

LP is used by appliances in vapor form only, but is stored in the tank as a liquid under very high pressure. As the liquid gas is released, it reverts back to a vapor and expands to many times its compressed volume.

LP Tank System

The storage reservoir for the LP gas system is a horizontally mounted tank which is permanently attached to the vehicle frame. The tank is accessible only from the outside of the vehicle. The tank supply valve is located near the top center of the tank, next to the regulator. Before opening the supply valve, check to be sure all controls for gas appliances are in the “Off” or “Pilot Off” position. If this step is not performed, LP gas could accumulate inside the motor home creating a fire or explosion hazard.



LP GAS WARNINGS AND PRECAUTIONS

- All pilot lights must be extinguished and appliances turned off while refilling the fuel tank or LP tank.
- Never smoke while refilling vehicle fuel tank or LP gas tank.
- Avoid inhaling exhaust gases produced by burned gasoline, diesel fuel or LP gas in items such as the range, chassis engine, generator engine, refrigerator, furnace and water heater. They contain carbon monoxide, which is an odorless, colorless and poisonous gas.
- Do not bring or store LP gas containers, gasoline or other flammable liquids inside the vehicle because a fire or explosion may result. LP gas containers are equipped with safety valves which relieve excessive pressure by discharging gas to the atmosphere.
- Do not fill LP gas container(s) above 80 percent of capacity. Overfilling the LP gas container can result in uncontrolled gas flow which can cause fire or explosion. A properly filled container will contain approximately 80 percent of its volume as liquid LP gas.
- Never use an open flame to test for LP gas leaks. Replace all protective covers and caps

on LP system after filling. Make sure valve is closed and door latched securely.

- Never connect natural gas to the LP gas system.
- Portable fuel-burning equipment, including wood and charcoal grills and stoves, shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.
- LP gas regulators must always be installed with the diaphragm vent facing downward. Regulators are equipped with a protective cover. Make sure that the regulator vent faces downward and that the cover is kept in place to minimize vent blockage which could result in excessive gas pressure causing fire or explosion.

LP GAS LEAKS

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

⚠ DANGER

IF YOU SMELL GAS

1. EXTINGUISH ANY OPEN FLAME, PILOT LIGHTS AND ALL SMOKING MATERIALS.
2. DO NOT TOUCH ELECTRICAL SWITCHES.
3. SHUT OFF THE GAS SUPPLY AT THE TANK VALVE(S) OR GAS SUPPLY CONNECTIONS.
4. OPEN DOORS AND OTHER VENTILATING OPENINGS.
5. LEAVE THE AREA UNTIL ODOR CLEARS.
6. HAVE THE GAS SYSTEM CHECKED AND LEAKAGE SOURCE CORRECTED BEFORE USING AGAIN.

FAILURE TO COMPLY COULD RESULT IN EXPLOSION RESULTING IN DEATH OR SERIOUS INJURY.

LP GAS ALARM

Your coach is equipped with an LP gas detector which sounds an alarm if an unsafe amount of LP gas is present inside the coach. Because LP gas is heavier than air, the detector is located on a cabinet face near the floor of the coach.

See the LP Gas Alarm manufacturer's information in your Owner InfoCase for complete instructions.

LP Gas Alarm

If the Alarm Sounds

If the alarm sounds, do not touch any electrical switches. Immediately turn off the main LP tank valve and all LP appliances, open all windows and roof vents, and leave the coach until the alarm stops sounding.

If the alarm keeps sounding at regular intervals, a leak may be present. Contact your dealer or an LP gas service center to have the problem corrected before using the LP system again.

⚠ WARNING

Never use an open flame to test for gas leaks. When testing for gas line leaks with a soapy water solution, DO NOT use a detergent containing ammonia or chlorine. These substances may generate a chemical reaction causing corrosion to gas lines, resulting in dangerous leak conditions.

Power Connection

The LP gas alarm is powered by the coach batteries. If the auxiliary battery switch is shut off or the battery cable is disconnected from the batteries, the alarm will not work. The LP gas alarm circuit breaker or fuse is located on the 12-volt house electrical load center (breaker panel).

Because the LP gas alarm is connected directly to the auxiliary battery, it is always drawing a small amount of current. Even though this current

draw is slight, it could drain the coach battery during storage periods when the house battery will not be charged regularly by the engine or shoreline. Turn the Aux. Batt switch OFF to avoid current drain during storage periods.

Other Combustible Fumes or Vapors

This alarm is designed to detect the presence of LP gas, however there are other combustible fumes or vapors which may be detected by the sensor. These include: alcohol, liquor, deodorants, colognes, perfumes, wine, adhesives, lacquer, kerosene, gasoline, glues, most all cleaning agents and the propellants of aerosol cans. Most are lighter than air in their vapor state and will only be detected when the area is closed up. Glues and adhesives may exhaust hydrocarbon vapors for months after they are applied. They are easily activated by high temperatures. If you close up an RV coach on a hot day, the chemicals used in its construction may be detected for several months after the coach was manufactured.

Further Information

See the manufacturer's information entitled "Your LP Gas Detector" in the Owner InfoCase for further instructions on nuisance alarms and care and testing of the LP gas detector.

SAFE USE OF THE LP GAS SYSTEM

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

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

LP gas also contains an odor additive that you can smell if LP is present in the air.

Listed are a few precautions to observe that will help you to use the LP gas system safely.

- Exercise caution at all times. Be familiar with the distinctive odor of LP gas. If a leak is suspected, turn off the supply valve immediately. Have the LP gas system checked by your dealer or other qualified LP gas service center.
- Do not tamper with the LP gas piping system, pressure regulator or gas appliances. Service and maintenance of LP gas system components should be performed only by your dealer or a qualified LP gas service center.
- Never attempt to connect natural gas to the LP gas system.
- Have the entire LP gas system inspected for possible leaks and missing or damaged parts at each tank filling. Also inspect before and after each trip, and any time trouble is suspected.
- Turn the LP supply valve off when not using the LP gas system.
- Never use a wrench to tighten the tank supply valve. It is designed to close leak-tight by hand. If a wrench is required to completely close the valve, it is defective and must be replaced.
- Be sure appliance and outside vents are open and free from obstruction when using the LP gas system.
- Never attach a lock or any device requiring a key to the LP tank compartment door. According to standards set for recreation vehicles, the LP supply valve must be readily accessible in an emergency.
- Exercise caution when drilling holes or attaching objects to the walls. Gas lines and electrical wiring could be seriously damaged and present an extreme safety hazard.

SELECTING LP FUEL TYPES

We recommend using straight propane in your LP tank. Propane gas is commonly available at all LP gas outlets in the U.S. (According to the National LP Gas Association, LP gas outlets in the United States do not offer any other type of liquefied petroleum gas than propane to the general public.) Check local phone directory

yellow pages for locations of local LP gas refilling stations or bulk dealerships.

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

REFILLING LP TANK

There are many LP gas refueling stations located throughout the country. These stations are listed in the telephone directory Yellow Pages under "Gas - Liquified Petroleum - Bottled and Bulk."

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

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

⚠ WARNING

Make sure the filling attendant uses the 80% overflow valve when filling the tank. A tank should never be filled above 80% level to allow for vaporization and liquid expansion.

Do not place LP gas containers inside the vehicle. LP gas containers are equipped with safety devices which relieve excessive pressure by discharging gas to the atmosphere.

Do not place LP gas containers, gasoline, or other flammable liquids inside the vehicle. Fire or explosion may result.

Do not alter or remove LP tank gauge at any time.

⚠ WARNING

DO NOT FILL CONTAINER TO MORE THAN 80 PERCENT OF CAPACITY. Make sure the motor home is level when filling. It is possible to accidentally overfill the tank if the vehicle is unlevel, with the fill valve on the uphill side. Overfilling the LP gas tank can result in uncontrolled gas flow, which can cause fire or explosion. A properly filled container will contain approximately 80 percent of its volume as liquid LP gas.

All pilot lights must be extinguished and supply valve closed before refilling LP gas tanks or vehicle fuel tanks.

Do not smoke or expose an open flame while near an LP refueling area. LP gas is heavier-than-air and extremely flammable.

Never use an open flame to test for LP gas leaks.

Replace all protective covers and caps on LP system before filling.

Never fill the LP tank with engine or generator running.

AIR IN THE LP GAS TANK

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

TRAVEL WITH LP GAS

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

PRESSURE REGULATOR

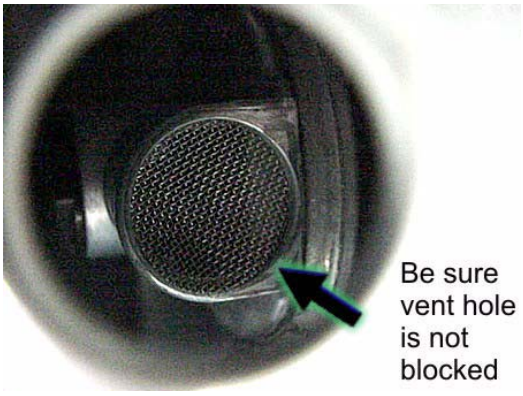
The pressure regulator is protected from the elements by a plastic cover which should be left in place at all times. Only your dealer or a qualified LP gas service should remove the regulator cover for adjustments.

⚠ WARNING

Visually inspect the pressure regulator vent periodically for blockage by accumulated debris or insect nests, etc.

Vent obstruction could result in excessive pressure which could cause a fire or explosion.

If any obstruction is apparent, have the regulator serviced by your dealer or a qualified LP gas service center.



Regulator freeze-ups are caused by the presence of moisture in fuel. This moisture will pass through the cylinder valve and into the regulator where it can freeze. Fuel producers, tank and bottle manufacturers and LP gas dealers take every precaution to reduce moisture, but sometimes only a fraction of an ounce entering the tank can cause problems. To help avoid the possibility of freeze-up, always keep tank control valve closed when not in use, even when tank is empty, to prevent moisture from collecting on the inside.

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

If moisture begins to cause problems, have your LP gas dealer inject a small amount of dry methyl alcohol in your tank (approximately one ounce to 20 pounds or one pint to 100 gallons) to help guard against regulator freeze-ups.

In very cold weather when a large volume of gas is being used for heating, it is possible to experience a loss of gas pressure. At first, this problem may appear to be caused by a regulator freeze-up, but is actually caused by failure of the liquid gas to vaporize as fast as it is needed. As the temperature becomes colder, it is increasingly harder for the liquid LP gas to vaporize. At the same time, the demand for LP to produce heat increases to the point where the system cannot maintain production.

The only solution to this problem is to reduce the consumption of gas where possible. Adjusting the temperature on the gas/electric refrigerator may be a first step. Using less hot water will help as well.

SECTION 9 ELECTRICAL SYSTEMS

Your coach is equipped with an electrical system consisting of two separate voltages; a 12-volt DC system and a 110-volt AC system. The 12-volt system consists of two internal power sources, while the 110-volt system is operated from an outside power source or the optional 110-volt generator. All systems operate through a single power converter control center to provide electrical power to the motor home.

ELECTRICAL CAUTIONS

- Careless handling of electrical components can be fatal. Never touch or use electrical components or appliances while feet are bare, while hands are wet, or while standing in water or on wet ground.
- Improper grounding of the vehicle can cause personal injury. Do not plug the utility power cord into an outlet which is not grounded and do not adapt the plug to connect to a receptacle for which it is not designed.
- Do not attach an extension cord to the utility power cord.
- Be sure that all electrical appliances to be used contain 3-prong plugs for proper grounding.
- Avoid overloading electrical circuits. Replace fuses or circuit breakers with those of the same size and amperage rating only. Never use a higher rated fuse or breaker.
- Use caution when handling or working near electrical storage batteries. Always remove jewelry and wear protective clothing and eye covering. Avoid creating sparks.

110-VOLT AC SYSTEM

The 110-volt system operates from the shoreline cord connected to an outside 110-volt utility service such as those at campgrounds, or from the 110-volt generator. When the shoreline cord is connected to an outside power source, or when the generator is in operation, the power converter automatically changes a portion of the 110-volt current to 12-volt DC current. All equipment in the motor home that is normally powered by the auxiliary batteries is then powered through the converter.

In addition, the following equipment is entirely dependent on 110-volt current: roof air conditioner, refrigerator (when placed in AC mode), microwave oven, and any 110-volt electrical equipment used at convenience outlets.

EXTERNAL POWER CORD (Shoreline)

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

⚠ WARNING

Do not connect the external power cord to any receptacle **until** you have contacted the owner and/or attendant of the premises to verify proper polarity and grounding.

It is the responsibility of the owner of the electrical receptacle to ensure that the receptacle is properly wired and grounded.

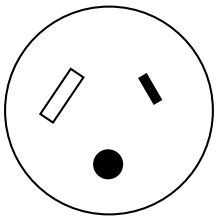
Reverse polarity and improper grounding of the vehicle can cause personal injury or death

Connecting the Power Cord

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

An access hatch in the compartment floor or door lets you route the shoreline cord out of the compartment and shut the compartment door while the shoreline is connected.

The three-prong power cord is designed to ground the electrical system through the receptacle. It is also designed to carry the amperage output of most campground outlets. If the electrical receptacle to be used is designed to mate with the three prongs on the power cord plug, the electrical connection can be expected to carry rated load. (See approximate power consumption table in this section.)



30 Amp Receptacle

WARNING

Do not plug the power cord into an outlet which is not grounded, or adapt the plug to connect to a receptacle for which it is not designed.

Be sure that all three prongs of the supply cord are properly plugged into the receptacle.

Do not connect the power cord to an extension cord.

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

After disconnecting the power cord, neatly replace it in the storage compartment.

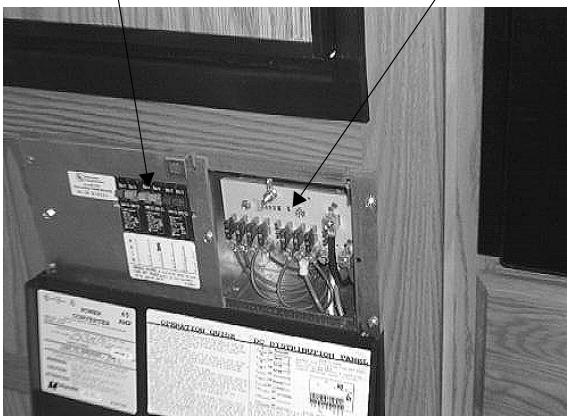
POWER CENTER (Converter)

The power center changes 110-volt AC current from the auxiliary generator or the shoreline into 12-volt DC current for use by 12-volt equipment in the motor home.

Certain circuits, however, remain unchanged for use by items which require 110-volt current, such as the air conditioner(s), the refrigerator in AC mode, the microwave oven, etc.

Current drawn from the coach batteries passes through the power center unchanged, although it is routed through a series of protective fuses located on the power panel.

The converter is located in the end of the galley, just inside the entrance door. The converter power panel contains the coach electrical system 110-volt circuit breakers and 12-volt fuses.



Power Converter

⚠ WARNING

Do not store anything around or on top of the converter, or in front of the cover. The converter generates heat while operating, and needs unrestricted air flow for proper cooling.

Charging Section

The converter charges coach batteries while 110-volt external power is connected. The converter will automatically "sense" the condition of the RV battery. If it is below "full charge", the Charging Section will start charging the battery.

If the coach batteries have been extremely discharged, they will accept charge at a relatively high amperage rate. If they are only slightly discharged, they will charge at a lower amperage rate. The rate of charge will decrease as the batteries reach "full charge", then will continue "trickle" charging at a very low amperage rate. If your battery does not charge as described above, it is possible the battery is defective.

Thermal Overload Protector

A protective thermal breaker will "break" the 110-volt AC power to the converter section of the Power Center if the power converter becomes overheated. This can result from operating above its maximum limit for an extended period of time or by obstruction of ventilation to unit.

NOTE: Power converter section will automatically route 12-volt lights and motors to battery power in this event.

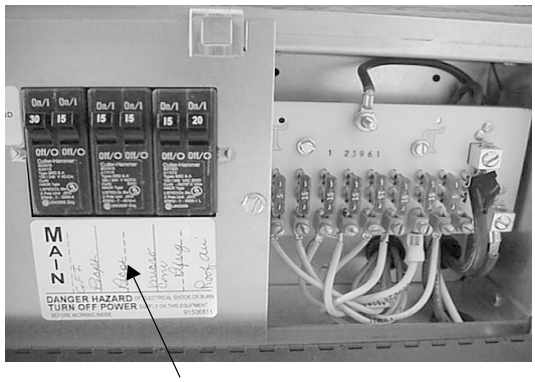
The thermal breaker will reset itself after a period of time, and the lights and motors will again resume operation from power converter section. If the breaker trips again shortly after reset, take immediate steps to correct cause of overheating. A portion of the coach 12-volt load (lights or motors or both) should be turned off to reduce total load. Also, inspect power converter section to make sure ventilation is not obstructed.

NOTE: The converter will not change 12-volt DC current to 110-volt AC.

110-Volt Circuit Breakers

The breaker panel protects all 110-volt components in the motor home from either an overload on the circuit or a short in the wiring or component itself. When an overload or short develops, the breaker will open preventing any further flow of electricity and, therefore, damage to the system.

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



110-Volt Circuit Breakers

NOTE: *See 12-volt fuse panel in 12-volt DC system elsewhere in this section.*

Further Information

Refer to the converter manufacturer's information provided in your Owner InfoCase for additional information about your power converter system.

110-VOLT RECEPTACLES (Outlets)

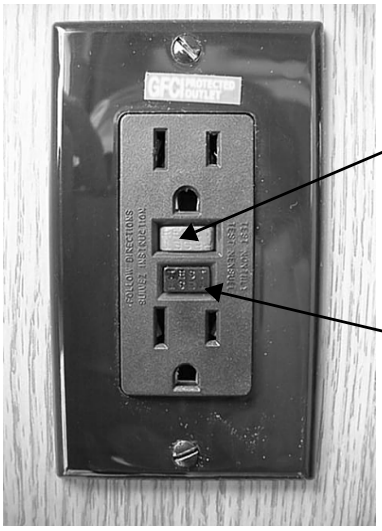
A number of standard AC electrical outlets are provided throughout the coach for connecting small appliances such as televisions, radios, toasters, etc. Outlets are also located on the outside of the coach near the entrance door.

GROUND FAULT CIRCUIT INTERRUPTER

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

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

The GFCI outlet is located in the bath, bedroom or dinette area, depending on the floor plan of the vehicle.



WARNING

The GFCI will not completely eliminate electrical shock. Small children and persons with heart conditions or other disabilities which make them especially sensitive to electrical shock may still be injured by a 110-volt receptacles even though protected by a Ground Fault interrupter.

AUXILIARY 110-VOLT GENERATOR

Consult the information provided in your Owner InfoCase for instructions on operation, troubleshooting and maintenance.

WARNING

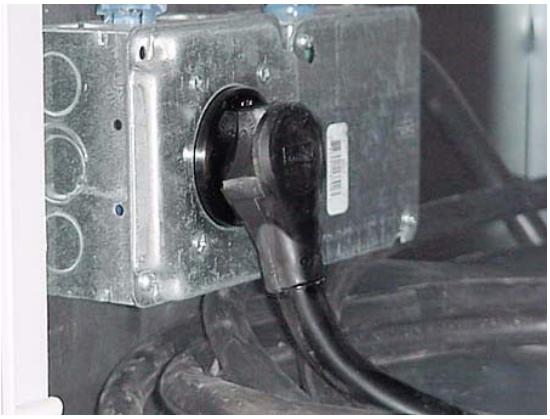
Careless handling of the generator and electrical components can be fatal.

Never touch electrical leads or appliances when your hand are wet, or when standing in water or on wet ground.

Do not attempt to repair the generator yourself. Service should be performed by an authorized service center.

Do not plug the power cord into the generator receptacle while the generator is running.

To use the 110-volt generator, plug the power cord into the generator receptacle within the shoreline compartment before starting the generator.

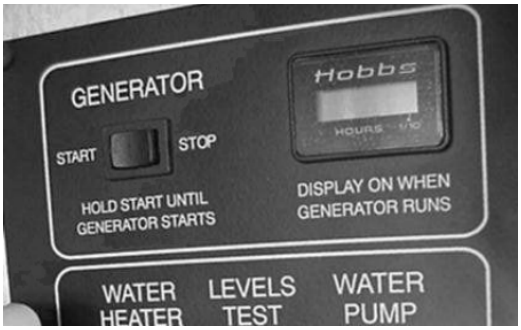


Starting and Stopping the Generator

The generator switches are located on the monitor panel as well as on the generator itself. The generator starter circuit does not rely on the

automotive battery, so the switch will operate whether the ignition switch is on or off.

Consult the generator owner's manual in your Owner InfoCase for specific instructions on starting and stopping your generator.



- See generator manufacturer's operating information for specific instructions.
- Reduce all electrical loads. (Shut off lights, fans, appliances, etc.)
- If the generator has not been run for two weeks or more, you may need to prime the fuel system before attempting to start.

Starting:

- Press the generator starter switch on and hold until generator engine is running, then release.
- Let the generator engine stabilize and run smoothly before turning appliances or electrical equipment on.
- Refer to the output specifications of your generator in the generator manufacturer's manual.
- Do not overload generator by turning too many items on. Overloading will cause the circuit breaker on the generator to trip. If this happens, the generator will run but no electricity will be present in the coach. You must then reset the circuit breaker on the side of the generator. See load chart for estimation of typical RV loads.

Stopping:

- Before shutting generator down, turn off electrical loads and let engine run at no-load for a few minutes to cool down.
- Press the generator switch Off and hold until the generator engine comes to a complete stop.

Approximate Power Requirements of Common Appliances	
Appliance or Tool	Approximate Power Consumption (Watts/Amps)
Vacuum cleaner	200-500W/1.7-4.3A
Coffee Maker	550-700W/4.8-6.1A
Hair dryer	800-1500W/7.0-13.0A
Electric clothes iron	500-1200W/4.3-10.4A
Electric blanket	50-200W/0.4-1.7A
Television	80-100W/0.7A
Electric drill	250-750W/2.2-6.5A
Air conditioner	1400-2000W/13-19A
Converter	300-500W/2.6-4.3A
Microwave Oven	700-1500W/6.0-13.0A

Generator Hourmeter

This meter is located on the monitor panel. It registers the total number of hours that the generator has been operated. Refer to the hourmeter to determine when periodic maintenance is due and to record services which have been performed.

Operation Warnings and Cautions

WARNING

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

1. **Do not** simultaneously operate the generator engine and a ventilator which could draw exhaust gases into the vehicle.
2. **Do not** open windows or ventilators on the end or side of the vehicle where exhaust pipe of the generator is located.

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

Check auxiliary generator oil level frequently during periods of use. Refer to the generator manufacturer's information in your Owner Info-Case for specific recommendations.

⚠ WARNING

Never check generator oil level while generator engine is running.

12-VOLT DC SYSTEM

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

Chassis (Starting) Battery

The automotive chassis battery under the hood is used to operate the engine starter and automotive accessories and controls found on the instrument panel. The slideout room system and the optional electric step are also connected to the chassis battery.

House (Aux.) Batteries

The house batteries supply current to 12-volt equipment located in the living area of the motor home. This includes interior lights, range exhaust fan, furnace fan, water pump, water level and holding tank gauges, 110-volt generator starter, refrigerator and bath roof vent fan. The house batteries may also be used to start the engine if the chassis battery is dead. Refer to "Battery Boost Switch in Section 5."

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

The house batteries are automatically charged by the engine alternator while the engine is running.

House Battery Access

On 322E and 322R models the auxiliary battery is located in an exterior battery storage compartment for convenient access for periodic inspection or maintenance.

House Battery Compartment
Models 22E & 22R
(also 24F diesel chassis option)

To service or remove the batteries, unfasten the retainer strap and disconnect battery cables.

House Battery Storage
in Entrance Step
Models 24F, 24V, 26A, 27L, 29B, 29K, 31C & 32G
(chassis batteries for 24F diesel chassis option)

⚠ WARNING

Refasten the retainer strap when returning the battery to the compartment.

Auxiliary Battery (Aux. Batt) Switch

The AUX BATT switch disconnects the auxiliary (coach) batteries from the 12-volt system of your coach to avoid long-term battery drain by electrical items that are hooked directly to the coach batteries, such as clock displays and radio memories, etc.

Always leave this switch ON except during storage periods. Some electronic displays and memory functions may need to be reset after power has been reconnected.

Aux. Batt. Switch
(Near entrance door)

See also Battery Storage and Maintenance in this section.

DC-AC Electrical Voltage Inverter - 300 Watt - Optional

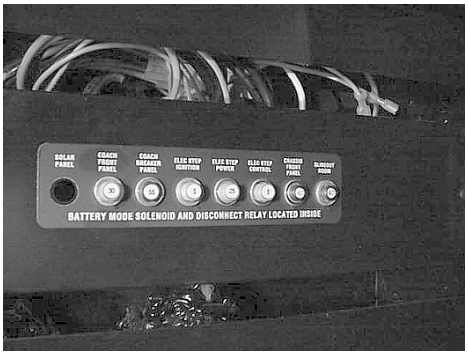
The voltage inverter changes 12 volt DC current into 110 volt AC current to operate your TV and DVD/VCP while traveling or when shoreline hookup is not available.

- The inverter must be switched on to operate.
- Turn the inverter off when not in use to avoid draining the coach battery.

NOTE: Batteries will deplete quickly with use of the inverter. The inverter is intended for limited, short term TV/Video use while the vehicle is in motion or while not connected to shoreline or generator power. It is not intended for steady use while 'dry camping' without generator or shoreline power.

12-VOLT HOUSE FUSES AND CIRCUIT BREAKERS

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

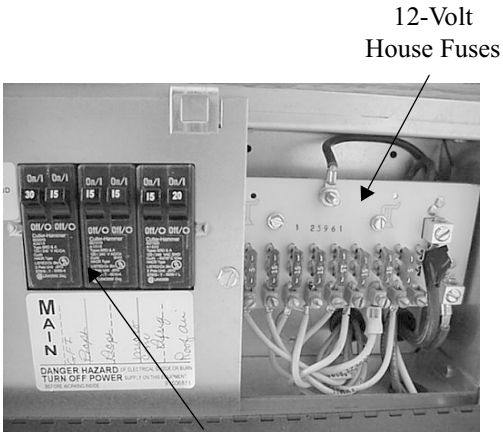


Chassis and House 12V Circuit Breakers behind cover panel in cargo compartment near entrance door

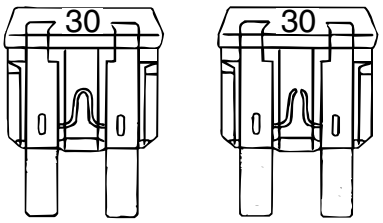
A label on the panel states the amperage rating and circuit protected for each fuse or breaker.

12-Volt Fuse Panel

The fuse panel is on the right-hand side of the power converter.



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



Good Fuse Bad Fuse

BATTERY STORAGE AND MAINTENANCE

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

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

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

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

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

⚠ WARNING

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

NOTE: We do not recommend leaving the shoreline plugged in continuously during storage periods because the batteries can lose electrolytic fluids and become damaged from continuous charging without periodic use or maintenance.

We recommend following regular battery inspection and maintenance, especially in cold weather.

Further precautions are:

- Remove the battery from the coach.
- Store it in a cool place on a wooden or rubber pad to inhibit conductive transfer.
- Check the state of charge periodically to avoid discharge or sulfating.

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

- Make sure the batteries always remain securely clamped in the battery tray.
- Make sure battery cable clamps are tight on the terminal posts and are free of corrosion.
- Neutralize corrosion buildup or acid film on top of battery by washing with a baking soda/water solution. Rinse with clear water.

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

WARNING

Before removing any battery cables or battery, make sure all 12-volt equipment in the motor home is off and the power cord has been disconnected.

Be sure to replace the battery terminal boot back onto the positive terminal after servicing. Care must be taken to avoid pinching the cable between any metal parts. Should the cable be damaged, a short circuit could result in personal injury or damage to equipment. Replace any damaged cables at once. Always remove jewelry and wear protective clothing and eye covering when checking or handling batteries.

- Clean and tighten battery terminals and have the specific gravity checked at least once a year.
- Every two months, or more often in hot weather, check the battery fluid level. Fill to approximately 3/8 inch above the plates. DO NOT OVERFILL. If fluid is added during freezing weather, the motor home should be driven several miles to mix water and electrolyte to prevent freezing.
- Fluid level check may be omitted if equipped with maintenance-free batteries.

⚠ WARNING

To prevent wiring damage, it is essential when replacing the cables on the battery, or when using a "booster" battery, that the positive post and the positive cable be attached and the negative post and negative cable be attached. The posts are marked (+) plus and (-) minus.

If a "booster charger" is used while battery is in the motor home, disconnect both battery cables before connecting the charger to avoid damage to engine electronic components.

Never attempt to charge or boost a frozen battery because it could explode.

BATTERY CHARGE METER

See related item under "Monitor Panel" in section 6.

BATTERY BOOST SWITCH

See section 5, Dash/Auto for information on Battery Boost Switch.

ELECTRIC ENTRANCE STEP

The power switch for the electric entrance step is located to the left of the main entry door as you enter the coach.

Automatic Mode (Operates with Door)

With the Power Switch in the On position the step is in Automatic Mode. This means it will extend and retract automatically whenever the door is opened or closed. This is done by means of a magnetic door switch attached to the lower hinged edge of the screen door section of the entrance doors. The steps will extend when the screen door is opened, and retract when the screen door is closed. With the power switch in the Off position the step can be kept in the extended or retracted position as described below.

Stationary Extended Mode

To keep the step in the extended position:

- turn the Power Switch to **On**,
- **open** the screen door to extend the step,
- then turn the Power Switch to **Off**.

The step will now stay extended whether the door is opened or closed. This position is normally used when parked at a campsite or whenever people are going to be entering and exiting the vehicle frequently.

Automatic Retraction Feature

The coach is equipped with a step retraction feature that retracts the step automatically when the entrance door is closed and the Ignition Switch key is turned to either the On or Start position regardless of whether the Step Power

Switch is On or Off. This feature is intended to prevent injury or damage caused by an extended step when the vehicle is moving.

WARNING

Do not use step unless it is fully extended.

Do Not Stand on step when vehicles ignition switch is turned to either the "On" or "Start" position. The step will automatically retract, which may cause personal injury. Always remember to retract the step before moving the vehicle.

"Last Out" Feature

An associated feature is the "Last Out" Feature. This feature extends the step when the screen door is opened after the ignition switch has been turned to either the On or Start position.

For additional information on the step, see the step manufacturer's operators manual included in your Owner InfoCase.

SECTION 10 PLUMBING SYSTEMS

FRESH WATER SYSTEM

The fresh water system provides water to the galley sink, shower, bathroom lavatory, toilet and water heater. Water may be supplied by either of two sources:

- a water tank located within the motor home, or
- any external water source to which the motor home may be connected, known as "city water".

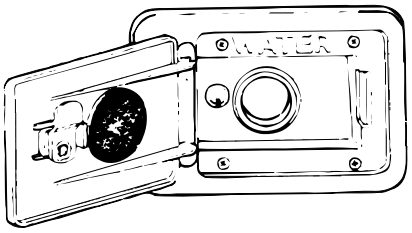
Fresh Water Tank Filling Procedures

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

The tank may be filled either by gravity fill or by pressure filling through the city water connection. A special diverter valve will route the water from the hose either directly to the water lines for city water hookup use, or to the fresh water tank for filling.

Gravity Fill

Insert hose into fill opening and turn water supply on. Tank is full when water flows from tank vent tube beneath coach. The gravity fill tube is located behind a small, lockable door.



WATER TANK FILL
Water Tank Gravity Fill

WATER PUMP

(Located beneath bed)

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

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

Pump Strainer Filter

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

Note: We recommend that you check and clean this filter after each tankful of water during the first few uses of the water pump system. Thereafter, remember to check it at least yearly, such as during winterization procedures.

Unscrew bowl and remove to clean strainer

Water Pump Filter

To Clean Pump Strainer

Be sure all water pump switches are OFF.

- Twist the inlet cap (bowl) counterclockwise to unscrew from the filter assembly.

- Remove the bowl and pull the strainer screen out of the bowl to tap out any particles and rinse clean.
- Insert the strainer screen back into the bowl, then screw the bowl back onto the filter assembly.

Water Pump Switch

Water pump switches are located on the systems monitor panel and in the water center compartment. (See Section 6). While the switch is in the "ON" position, the pump will automatically supply water pressure as it is needed. It is recommended that the pump switch be turned off whenever you are away from the vehicle or not using the water system. A slow leak in a faucet could drain the water system and discharge the coach battery.

Initial Water Line Priming

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

DISINFECTING FRESH WATER SYSTEMS ON RECREATION VEHICLES

(As approved by the U.S. Public Health Service)

To assure complete disinfection of your fresh water system, it is recommended that the following procedure be followed on a new system, one that has not been used for a period of time, or one that may have become contaminated. This procedure is also recommended before long periods of storage such as over winter.

1. Prepare a chlorine solution using 1 gallon of water and 1/4 cup of household bleach (sodium hypochlorite solution). With tank empty, pour chlorine solution into the tank. Use 1 gallon solution for each 15 gallons of tank capacity. This procedure will result in a residual chlorine concentration of 50 ppm in the water system. If a 100 ppm concentration is required as discussed in item 3, use 1/2 cup of household bleach with 1 gallon of water to prepare the chlorine solution. One gallon of the solution should be used for each 15 gallons of tank capacity.
2. Complete filling of tank with fresh water. Open each faucet and run the water until a distinct odor of chlorine can be detected in the water discharged. Do not forget the hot water taps.
3. Allow the system to stand at least 4 hours when disinfecting with 50 ppm residual chlorine. If a shorter time period is desired, then a 100 ppm chlorine concentration should be permitted to stand in the system for at least 1 hour.
4. Drain and flush with fresh water.

⚠ WARNING

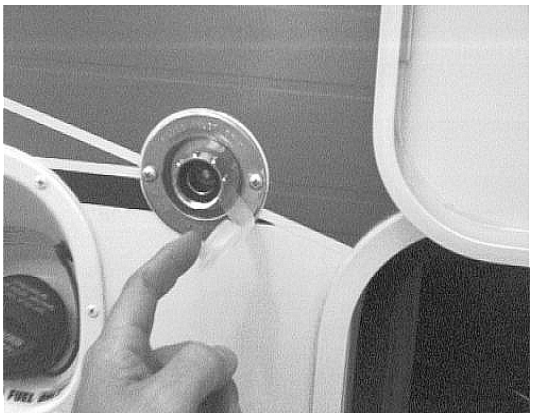
Chlorine is poisonous - recap bottle and clean utensils after use.

Never use automotive type antifreeze in your potable water system as it is poisonous.

EXTERNAL WATER SUPPLY ("City Water")

To Connect to an External Source:

1. Turn the demand pump switch to off.
2. Attach a hose from the external water source to the city water connection in the utility compartment or on the left side of your vehicle.
3. Turn on the external water source.



City Water Connection

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

*NOTE: Because city water pressure varies from location to location, we recommend using an **in-line water pressure regulator** to prevent damage to any components, connections and seals in your fresh water system.*

*A water pressure regulator may be obtained from any well stocked RV dealership retail center and some retail discount centers. These devices simply connect in-line between the supply hose and the city water input on the coach. We recommend a regulator that controls water pressure to **40 psi maximum**.*

To Disconnect From the External Source:

1. Turn the external source off.
2. Open a faucet inside the vehicle to relieve line pressure.
3. Disconnect the hose from the vehicle and replace the cap on the connection.

SHOWER HOSE VACUUM BREAKER

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

The International Association of Plumbing and Mechanical Officials Standard TSC 21-85 (PAR. 4.3) states:

"Shower heads which incorporate shutoff valves, shall have a minimum "drip rate" of one (1) quart in thirty (30) minutes."

CAUTION

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

EXTERIOR SHOWER/ WASH STATION - Optional

The exterior wash station feature allows you to do things such as rinse off sand or salt after a swim, rinse off muddy boots, or bathe your pet outside the coach. A water pump switch is located near the shower faucet for your convenience.

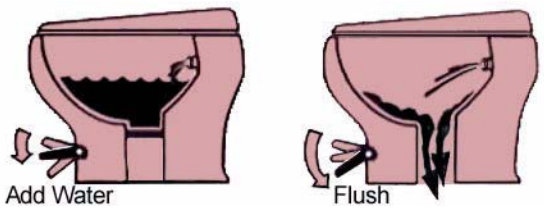
Exterior Shower/Wash Station
Models 322E & 329B/K

Exterior Shower/Wash Station
Models 322R, 324V, 324F, 331C
327L, 326A & 332G

TOILET

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

1. Press the pedal down completely and hold until bowl is clean. Release pedal slowly. A small amount of water will remain in the bowl.
2. To add more water to the bowl than the normal 2” automatic refill, press the pedal partway down and hold until desired amount has been added. Release pedal slowly.



Please refer to the manufacturer’s information supplied with the toilet for further operating and maintenance instructions.

Important “Don’ts”

- Don’t use facial tissue or regular toilet tissue in the RV toilet. These will not disintegrate sufficiently and will often cling to the sides of the holding tank. Toilet tissue made specifically for use in RV toilets and holding tanks is available at most RV supply centers.
- Don’t dispose of sanitary napkins or other non-dissolving items in the toilet.
- Don’t put automotive antifreeze or caustic chemicals, such as laundry bleach or heavy detergents into the toilet or holding tank. These products may damage plastic or rubber parts in the system.

Cleaning the Toilet

The toilet should be cleaned regularly for maximum sanitation and operating efficiency. If an odor is apparent from the toilet:

1. Clean the toilet bowl with a mild bathroom cleaner. Do not allow cleaners to set in the bowl for long periods of time to avoid damaging the seals. Do not use caustic or abrasive cleaners because it may damage the plastic surfaces.
2. Dump and rinse holding tank.
3. Add odor control chemical in amount specified after cleaning and every few days during use.
4. Remove the water line from the base of the toilet and clean the screen.
5. If the flush valve becomes stiff after extended use, it may be lubricated with a sil-

icone spray.Turn the water pump off and operate flush pedal to drain water from the toilet bowl. Spray silicone lubricant onto flush valve inside bowl and operate flush pedal a few times to ensure free operation.

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

WASTE WATER SYSTEM (HOLDING TANKS)

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

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

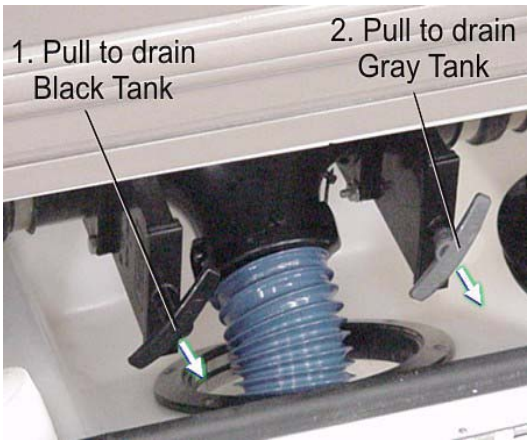
Dumping Holding Tanks

1. Remove drain hose from exterior storage compartment.
2. Remove dust cap from drain and connect drain hose. Be sure it is firmly attached.

NOTE: The dump valve drain outlet section swivels downward when necessary to avoid bends in the drain hose which could trap solids while dumping. It will also provide more direct drainage while using on-site sewer hook-ups.

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

NOTE: Do not open the gray water valve until the black water tank is drained and dump valve closed to avoid sewage back-up into gray tank. Gray water also rinses any black water solids from the drain hose.



Holding Tank Dump Valves (typical)

5. Open the gray water valve. Be sure there are no sags in the hose to ensure complete drainage. Close gray water valve as soon as tank is empty.
6. After both tanks have been drained, run several gallons of water into the sewage tank through the toilet. Then open black tank valve and drain the tank again. Close valve and replace dust cap securely.
7. Add an odor control chemical to the sewage holding tank. These chemicals are available at most R.V. stores.
8. Rinse sewer hose thoroughly with water and stow.

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

Using On-Site Sewer Hook-Ups

The drain hose may remain attached to the dump outlet and be routed out the bottom of the compartment while the motor home is parked and connected to an on-site sewage hook-up.

When using a sewer hook-up, keep the dump valves closed until a tank becomes full or when preparing to leave the site. This keeps the solids

in suspension, allowing them to be carried out with the liquids when the dump valve is opened. If the valve is left open, the liquids will drain off, leaving solids in the tank. Should this accidentally happen, disconnect the hose, fill the tank about half full with water, and drive a few miles to dislodge the solids. A few starts and stops will aid in the process. Then reconnect the hose and drain in the normal manner.

Holding Tank Level Indicators

The holding tanks may be monitored on the wall mounted monitor center.

Press the "Levels Test" switch to check the appropriate level in each tank.

See Section 6 for further information on the monitor panel.

HOLDING TANK HEATERS - Optional

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

DO NOT operate the holding tank heaters unless you are providing a supplemental 12-volt power source to recharge the house batteries. This means either the shoreline cord must be plugged into a 110-volt source, or the auxiliary generator must be operating, or the chassis engine must be running (such as when driving down the road). These three sources can prevent excessive discharge of the house battery.

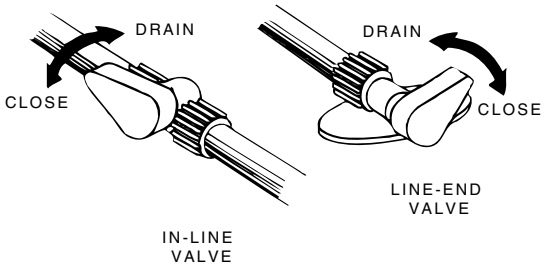
NOTE: The holding tank heater pads are electrical resistance type heating elements. This type of heating element typically uses a large amount of current while operating. If the tank heaters are used without a recharging source, they will drain the house batteries in a relatively short period. Typically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

WATER LINE & TANK DRAIN VALVES

The water drain valves are used to drain water from the water tank and the water supply lines when preparing the motor home for storage or when sanitizing the water system.

To open or close the drain valves, turn the handles in the directions indicated by the following illustration.

Drain valve locations are listed on the following pages.



Water Drain Valves
(typical)

Water Tank
Drain Valve

Water Tank Drain Valve (Typical)
Under Rear Bed or Couch

WATER SYSTEM DRAIN VALVE LOCATIONS		
MODEL	**SYSTEM**	**DRAIN VALVE LOCATIONS**
322R	Water Lines:	Two (2) valves beneath front dinette seat. Lift seat board to access. Two (2) valves behind the removable face panel of the shower pan base.
	Water Tank:	One (1) valve beneath couch. Lift couch seat to access.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.
	Water Heater By-Pass Valve:	Beneath front dinette seat. Lift seat board to access.
	Winterization (Antifreeze) Valve:	Beneath couch. Lift seat cushion frame to access.

WATER SYSTEM DRAIN VALVE LOCATIONS		
MODEL	**SYSTEM**	**DRAIN VALVE LOCATIONS**
322E	Water Lines:	Two (2) valves beneath the shower base. Remove access panel on the lower left front of the shower cabinet.
	Water Tank:	One (1) valve beneath the rear of the couch. Lift couch to access.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.
	Water Heater By-Pass Valve:	On floor beneath galley range. Access through storage cabinet door.
	Winterization (Antifreeze) Valve:	Beneath rear of the couch. Lift couch seat to access.
324V (with rear bed) 326A	Water Lines:	Two (2) valves beneath shower. Access through removable panel on lower front of shower cabinet. Two (2) valves beneath bed. Lift mattress to expose access hole.
	Water Tank:	One (1) valve beneath the bed. Lift mattress to expose access hole.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.
	Water Heater By-Pass Valve:	Beneath the bed. Lift mattress to expose access hole.
	Winterization (Antifreeze) Valve:	Beneath the bed. Lift mattress to expose access hole.
	Exterior Shower:	Lay shower head on ground and open faucet valves to drain lines and hose.

WATER SYSTEM DRAIN VALVE LOCATIONS		
MODEL	**SYSTEM**	**DRAIN VALVE LOCATIONS**
324V (with rear dinette)	Water Lines:	Two (2) valves beneath shower. Access through removable panel on lower front of shower cabinet.
	Water Tank:	One (1) valve beneath the dinette cushion along the back-wall. Lift cushion to expose access hole by bath wall.
	Water Heater By-Pass Valve:	Beneath rear dinette. Lift cushion along the sidewall to expose access hole on front side of dinette.
	Winterization (Antifreeze) Valve:	Located beneath rear dinette. Lift cushion along backwall to expose access hole by the sidewall.
	Exterior Shower:	Lay shower head on ground and open faucet valves to drain lines and hose.
324F	Water Lines:	Two (2) valves beneath galley. Lift bottom shelf to access.
	Water Tank:	One (1) valve beneath galley. Lift bottom shelf to access.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.
	Water Heater By-Pass Valve:	In bottom of refrigerator cabinet. Remove drawer to access.
	Winterization (Antifreeze) Valve:	Beneath galley. Lift bottom shelf to access.
	Exterior Shower:	Lay shower head on ground and open faucet valves to drain lines and hose.

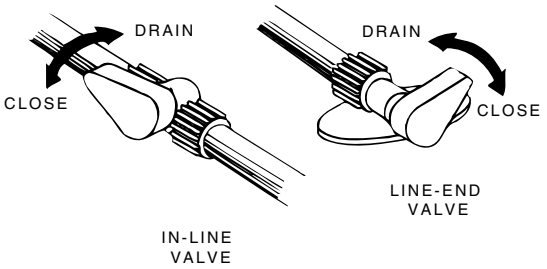
WATER SYSTEM DRAIN VALVE LOCATIONS		
MODEL	**SYSTEM**	**DRAIN VALVE LOCATIONS**
327L	Water Lines:	Two (2) valves in exterior storage compartment ahead of left (driver) side rear wheels.
	Exterior Shower:	Open exterior shower knobs and lay shower head on ground. *NOTE: If coach is not equipped with exterior shower, there are two drain valves below the metal face panel on the left (forward) side of the water center.* Also place the tip of your finger inside the city water connection and gently press the backflow valve (small "button" in center of connector) to drain any water left in the city water line.
	Water Tank:	One (1) valve in exterior storage compartment ahead of left (driver) side rear wheels.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.
	Water Heater By-Pass Valve:	Behind wardrobe cabinet. Remove bottom wardrobe drawer to access.
	Winterization (Antifreeze) Valve:	In exterior storage compartment ahead of left (driver) side rear wheels.
329B 329K	Water Lines:	Two (2) valves beneath shower. Access through removable panel on lower front of shower cabinet. One (1) valve in drivers side 2nd storage compartment.
	Water Tank:	In drivers side 2nd storage compartment.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.
	Water Heater By-Pass Valve:	In rear wardrobe. Remove drawer to access.
	Winterization (Antifreeze) Valve:	In driver's side 2nd storage compartment.
	Exterior Shower:	In compartment above driver side rear wheels. Lay shower head on ground and open faucet valves to drain lines and hose.

WATER SYSTEM DRAIN VALVE LOCATIONS		
MODEL	**SYSTEM**	**DRAIN VALVE LOCATIONS**
331C	Water Lines:	Two (2) valves beneath the removable bottom panel in the bathroom lavatory cabinet. Two (2) valves beneath the queen bed or driver side twin bed. Lift head of mattress to expose access hole.
	Water Tank:	One (1) valve beneath the queen bed or driver side twin bed. Lift head of mattress to expose access hole.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.
	Water Heater By-Pass Valve:	In bottom of refrigerator cabinet. Remove drawer to access.
	Winterization (Antifreeze) Valve:	Beneath the queen bed or driver side twin bed. Lift head of mattress to expose access hole.
	Exterior Shower:	Lay shower head on ground and open faucet valves to drain lines and hose.
332G	Water Lines:	Two (2) drains at foot of bed on drivers side.
	Exterior Shower:	Close valves under bed head drivers side. Move mattress to expose hole.
	Tank Drain:	Move mattress to expose hole at head of bed.
	Winterization Valve:	Move mattress to expose hole at head of bed.
	Water Heater By-Pass Valve:	Under galley remove panel along RH side.
	Water Heater:	Drain plug on outside of coach, behind service door. Use socket to remove drain plug.

WINTERIZING PROCEDURE

Cold Weather User Storage Procedure

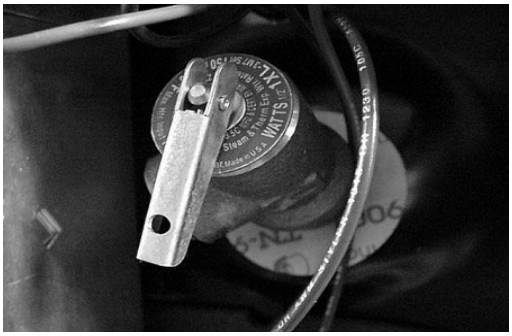
1. Clean and dump holding tanks by following steps A, B, and C
   A. Add water to the sewage holding tank by holding the toilet flush lever open with the water pump running. Add water to the waste water holding tanks by opening the kitchen, shower and lavatory faucets. Tanks should be about 1/4 to 1/3 full to rinse properly. Driving to a disposal site will normally loosen and rinse any waste material from the sides of the tank.
   B. Completely drain the sewage and waste water holding tanks at an approved waste disposal site. Drain the sewage tank first so the following waste water can rinse any waste solids from the dump outlet and sewer hose.
   C. Close dump valves and refit the dust cap onto the drain outlet.
2. Level the motor home and drain the entire plumbing system as described in the following steps.
3. Open all drain valves. (See the water system drain valve chart for locations on your model.)



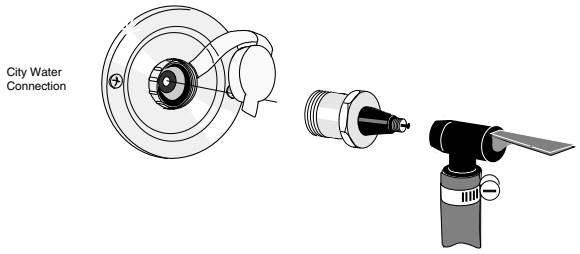
NOTE: If your coach is equipped with a water purifier system, you will need to remove the filter cartridge and install the diverter plug supplied. The cartridge is located beneath the galley sink counter. The diverter plug must be removed and a filter cartridge installed before resuming normal use of the water system. The plug is intended for winterization only.

4. Operate the toilet flush lever and hold until water stops flowing in the toilet. Then turn water pump switch OFF.
5. Turn off the water heater power switch before draining the water heater tank to avoid damage to the heating element. Drain the water heater by removing the plug from the base of the water heater tank, accessible from the outside of the coach. (Requires socket and ratchet.)

Also open the Pressure-Temperature relief valve at the top right portion of the tank to prevent air locking in the tank while draining.



6. After water has stopped draining at all faucets and drain valves, leave faucets open and connect a “blow-out” plug to the city water connection on the coach. Then use a compressed air hose regulated to 30 psi or less to force air through the system. (A “blow-out” plug can be purchased at any Winnebago or Itasca dealer. P/N 701705-01-000.)

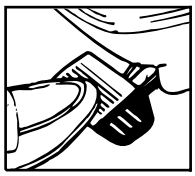


CAUTION

Limit air pressure to 30 psi to avoid damage to pump or water lines.

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

7. Let air flow for five minutes until water is completely drained out of faucets and drain valves. Then close faucets one at a time.
8. Operate and hold toilet flush lever until water is completely drained from toilet.



9. Now turn air pressure off and disconnect water purge adapters. Recap the city water connection to avoid contamination by dirt or insects.
10. Close all drain valves and faucets to avoid contamination by dirt or insects. Reinstall water heater drain plug and close P-T relief valve.
11. Pour about one cup of non-toxic RV antifreeze into the kitchen sink drain, bathroom sink drain and shower drain. This prevents any holding tank odors from entering the coach during storage.
12. Place a bucket beneath the sewage drain valve outlet and re-drain the sewage and waste holding tanks of any clean water that entered during “blow-out” procedure.

    Close dump valves to prevent valve shafts from rusting and to prevent entry by rodents and insects. Refit the dust cap onto the drain outlet.

Your drainage and fresh water systems are now totally winterized.

WARNING

NEVER use automotive antifreeze/coolant in your RV water system. Auto antifreeze contains ethylene glycol which, if ingested, can cause blindness and can be fatal.

It is not necessary to add antifreeze to the toilet since the flush valve will be closed.

Do not add automotive antifreeze or caustic chemicals such as bleach or laundry detergents into the toilet bowl or holding tanks. Although these products may have a deodorizing effect, they may damage plastic and rubber parts in the system.

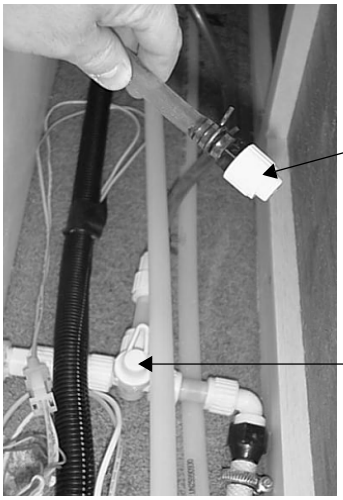
NOTE: As an alternative to totally draining the plumbing system, you may winterize tanks and lines by pumping non-toxic RV antifreeze through the system. This product is available from your dealer and from most RV supply stores. Follow directions on the container to determine the correct amount to use for your coach.

If your coach is equipped with the optional water heater by-pass valve, you can fill the hot water lines with antifreeze solution without filling the water heater tank. See earlier pages for location of the by-pass valve.

Winterization Valve

Your coach is equipped with a manually operated water line winterization system for your convenience in winterizing fresh water lines.

The system features a diverter valve and suction tube in-line between the tank and water pump to draw non-toxic RV water system antifreeze into the water lines. This feature is located near the water pump and drain valves beneath the rear bed.



Winterization Valve
beneath couch or rear bed
(See page 10-7 for location)

To Fill Lines with RV Water Line Antifreeze

- Turn water heater by-pass valve to BY-PASS position.
- Remove and save the protective cap from the end of the suction tube.
- Insert the end of the tube into a container of RV antifreeze solution.
- Turn the diverter valve handle so that it points toward the suction tube.
- Turn the water pump switch on.
- Open each hot and cold water faucet handle in the coach one at a time until antifreeze solution just begins to flow from the faucet, then close.

CAUTION

Leave by-pass valve handle in NORMAL FLOW position if draining water and blowing out water lines. Place in BYPASS position ONLY when using antifreeze solution in water lines.

When Done Adding RV Antifreeze:

- Turn water pump switch off.
- Turn the diverter valve handle so it points toward the water line to the pump as shown in the photo. This will stop the flow from the suction tube and revert the tank line flow to the pump.
- Replace the protective cap onto the end of the suction tube to keep out insects and debris when not in use.

SECTION 11 ENTERTAINMENT

IN-DASH RV RADIO
See Section 5

SWING OUT TV MOUNTS

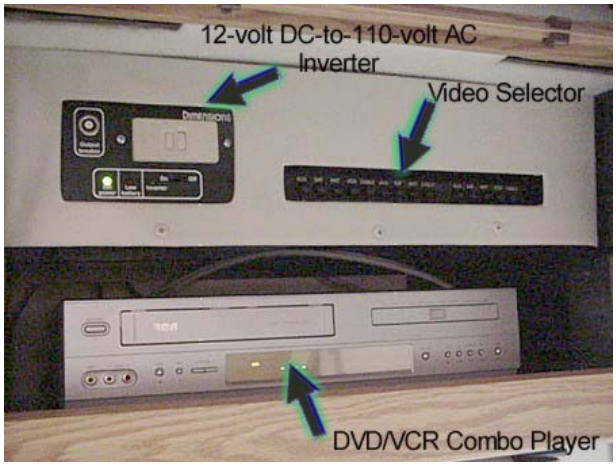
CAUTION

Swing-out TV mounts are not intended for viewing while the vehicle is in motion. If your model is equipped with a swing-out TV mount, the TV should be stowed and latched while traveling.

VIDEO SELECTOR SYSTEM - Optional

The video selector system allows you to switch the antenna, cable TV, satellite TV system or VCR/DVD signal to any TV set location in the coach.

This means one person can watch a ball game coming in on the roof antenna on the bedroom TV while another person watches a satellite or cable TV program or video on the front TV. Also, two people can watch different programs on the two TV's while taping a third program on the VCR.



Components

Each component has a set of buttons that lets you select which source you want to get the picture signal from, whether cable TV, roof antenna, digital satellite dish, VCR/DVD or whatever equipment you have connected to the AUX input. You will notice the VCR button group has no VCR button. That's because it wouldn't work for the VCR to get a picture signal from itself.

There are three component groups:
- FRONT TV
- VCR/DVD (in Video Center)
- TV2 (in Rear of Coach or Exterior Entertainment Center)

Selections (Signal Input):
Each button in a component group lets you select the source you want to draw the picture signal from, such as cable TV, VCR/DVD, the roof antenna, or satellite dish antenna. Press the corresponding button to connect to the desired signal source.

- AUX = Press to connect to a video component which you may have installed later.
- SAT = Press to connect to the Digital Satellite System (dish antenna)
- ANT = Connects to the roof antenna.
- VCR = Connects selected TV to the VCR/DVD player.
- CABLE = Connects to a local cable TV system hookup if you have connected one to your coach.

HOME THEATER SYSTEM - Optional

The home theater system operates from 110V AC household current only, so you must have either the shoreline plugged in, or the generator running or the inverter turned on.

The sound from this system emits from the five surround sound cube speakers located near the ceiling in the lounge area of the coach. These speakers are not connected to the dash radio speakers. Refer to the manufacturer's operating guide for complete operation and troubleshooting information.

12-Volt Home Theater Power Switch

The TV and video player unit on models with side-mounted swing-out TV are powered by 12-volt automotive current and has a power input switch located in the video center cabinet. The switch is labeled '12 VOLT TV' as shown.

With this switch in the ON position, you may turn the home theater unit on and off with the remote control or by the power button on the face of the video player unit.

Turn this 12-volt power switch off when not using the home theater system to conserve house battery charge.

TV ANTENNA

The TV antenna on your motor home can be easily raised, rotated a full 360° and lowered from inside the vehicle by simply turning a crank or rotating knob. A built-in signal amplifier designed to strengthen signals, is controlled by a power switch built into the TV jack assembly.

The signal amplifier is housed inside the antenna with the circuit board connected directly to the antenna elements. Power to operate the amplifier (12-volt DC) is supplied through the downlead cable which also carries the TV signals to the TV set. The power supply separates the 12-volt DC from the TV signals and provides a place for attaching the TV set and the 12-volt power source.

Operation

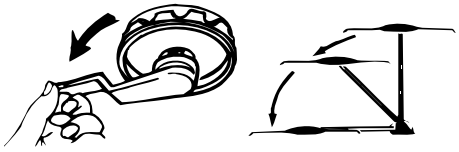
Raising Antenna - Turn elevating crank clockwise in "UP" direction until some resistance to turning is noted. Antenna is now in operating position. Turn amplifier power switch "ON" to receive TV signal.

WARNING

Never allow the antenna to touch electrical power lines or any other electrical wires.

Rotating Antenna - Make sure antenna is in the "UP" position. Pull down on rotating knob until it disengages ceiling plate and rotate for best picture and sound on TV set.

Lowering Antenna to Travel Position - Rotate antenna until pointer on rotating knob aligns with pointer on ceiling plate.



Turn elevating crank (counterclockwise) in "DOWN" direction until resistance is noted. Antenna is now locked in travel position. Turn amplifier power switch "OFF".

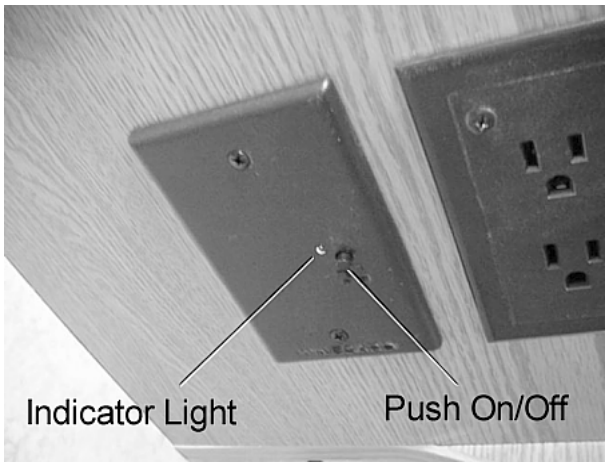
CAUTION

Always align directional handle to "DOWN" position before lowering.

TV Antenna Signal Amplifier

NOTE: For coaches without the video control center option, be sure the TV antenna amplifier switch is turned OFF while connected to cable. The antenna amplifier will make the cable TV signal snowy.

To operate amplifier, turn on power switch.



TV jack plates are mounted in various locations throughout the coach. Some of these wall plates are not readily visible and may be in one of the following locations.

- Beneath passenger side overhead cabinet.
- In front overhead TV cabinet, if equipped.
- In the flip-down entertainment tray on the outside of the coach.

Checking Performance

The TV signals available to an RV are entirely dependent on its location in relation to the transmitter. Signals may vary from strong to no usable signal at all. We recommend that the TV system be checked out in an area known to have good TV reception.

To check the antenna amplifier, raise the antenna, select a TV channel and rotate the antenna for best picture. Then turn off the amplifier power switch. If the antenna amplifier is working properly, the TV picture will now be degraded (snowy). When you turn the switch back on, the picture should again be sharp.

CABLE TV HOOK-UP

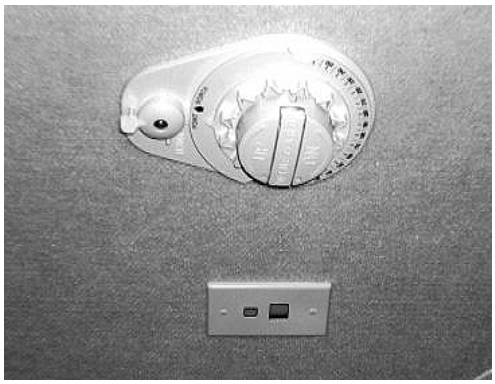
The cable television connector is located in the shoreline cord compartment.

Cable TV Hook-Up
in Shoreline Compartment

DIGITAL SATELLITE TELEVISION SYSTEM - Optional

The Digital Satellite Television System allows you to receive TV programs directly from satellite to your coach. The programs are transmitted in digital format so the quality is equal to laser disc or CD.

See your RV Digital Satellite Antenna System Owner Manual for instructions about aiming the satellite antenna dish. The coach must be level before attempting to aim the antenna dish.



Digital Satellite Dish Control
located on ceiling

We recommend that you read the satellite dish manual thoroughly to understand the system completely before attempting any setups or adjustments.

Satellite System with Optional Video Control Center:

Press the SAT switch to connect the TV to the Satellite system. The satellite system is hooked through the SAT input of the video control center.

Satellite System without Optional Video Control Center:

Turn off the power switch for the TV Antenna Signal Amplifier to route the system signal to the TV input jacks.

Satellite System Wiring

This coach is pre-wired for installation of a digital satellite system (DSS) if your coach was not factory equipped with one. Hookup jacks are located in the left or right front overhead compartment, depending on model. See your authorized Winnebago Industries dealer for proper installation and sealing of roof mounted components.

Interior Connection for Satellite Dishes

Exterior Connection Cable TV
(In Shoreline Compartment)

EXTERIOR ENTERTAINMENT CENTER

The exterior entertainment center contains a stereo radio/CD player and convenient TV hook-ups for your outside listening or viewing pleasure.

Exterior Entertainment Center

TWO-WAY RADIOS - Optional

If your coach is equipped with the available two-way radios, the charger/docking bay is located on a cabinet end near the entrance door - for easy access as you head out the door.

Please read the manufacturer's operating information in your Owner InfoCase for details on charging and using the radios.

SLEEPING FACILITIES

WARNING

Do not use sleeping facilities while vehicle is moving.

Overhead Front Bunk (If equipped)

The overhead front bunk is located above the driver's compartment. The rear mattress section is stored on top of the front section when not in use. A bunk ladder (supplied) can be hooked into the brackets on the rear edge of the mattress for easier access and exit. Strap the ladder onto the mattress to store while traveling or when not in use.

Front Overhead Bunk
Shown with mattress sections in use position

Front Bunk Ladder
Shown hooked into mattress bracket

Couch Bed Conversion

Couch to Bed:

Pull the front edge of the couch seat upward and outward from the wall while gently pushing downward on the backrest until the cushions lie flat. The bed is now ready for use.

Bed to Couch:

Push the front edge of the seat toward the wall while lifting upward on the backrest until the couch is fully seated against the wall.

Dinette/Bed Conversion

Dinette to Bed:

1. Release the catch on the table leg brace and fold the leg up against the bottom of the table.

2. Remove the table from the wall support bracket by lifting the end of the table. Then lower the table to rest on the cleats attached to each dinette bench.
3. Arrange dinette cushions to cover bed area.

Bed to Dinette:

1. Replace the table onto the wall support and lower the table leg.
2. Make sure that the table leg is secured into the floor support bracket and the leg brace is locked.

U-Shaped Dinette/Bed Conversion - Optional (Model 327L only)

The round dinette can be converted into additional sleeping space when needed by lowering the table and moving a cushion into place as shown below.

1. Get a partner to help you lift the table upward off the support tubes and set the table edgewise onto the floor to remove the table leg tubes.
2. Pull table tubes from the floor or table sockets depending on which socket into which they have remained fitted.
3. Store table leg tubes beneath dinette seat.
4. Be sure leaf extension is lowered.

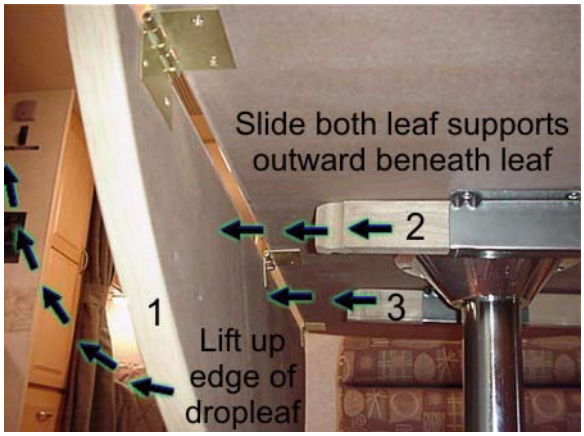
5. Place the table, ‘flat’ side outward, in the ‘notch’ - lowering it onto the table support columns on the dinette seat face.

6. Place large, rounded back cushion into place over the table to complete the bed cushion conversion.

Reverse steps to reassemble to dinette configuration.

Round Table Leaf Extension

Lift the leaf extension upward then reach beneath the tabletop and slide the support arms outward to hold the extension. Reverse steps to lower the extension.



DAY/NIGHTER PLEATED BLINDS

Your coach may feature two-stage pleated window blinds that can be used for daytime or nighttime privacy.

Sun Filter:

The first, lower section is a translucent white shade that can be lowered for privacy without darkening the inside of the coach. It can also filter out harsh direct sunlight to help keep the inside of the coach cool in summer or to disperse light for houseplants.

Room Darkening/Privacy Shade:

The second, upper section is an opaque, darkening shade for nighttime privacy and daytime room darkening purposes. Pull both the first and second sections down together or separately.

See Section 14 Care & Maintenance for adjustments and care.

SECTION 13 SLIDEOUT ROOM

SLIDEOUT ROOM

The slideout living room provides a spacious living area at the p nush of a button. The slideout room is extended and retracted using a motorized mechanism with an electronic control system.

The slideout room system uses a 12-V DC motorized room mechanism to insure smooth operation and positive weather seal.

The slideout control switch is located near the entrance door or OnePlace monitor panel.

Operating Safety Precautions

Before Extending the Slideout Room:

1. Level the coach and set the Parking Brake.
2. If your coach has a luggage compartment beneath the slideout room, make sure that the luggage compartment doors are closed so that they will not interfere with slideout operation.
3. Make sure that there are no obstacles on the outside of the coach that would interfere with room extension or could be damaged due to room extension.
4. Unfasten the safety travel straps inside the coach.

If the slideout room has a couch or other furniture, make sure no people or pets are seated on them until the room has been fully extended.

⚠ CAUTION

Release slideout room travel straps before attempting to extend slide-out room. Fasten travel straps before driving vehicle. See instructions below.

Travel Strap

The travel strap **must be released before extending the room** or damage to the coach will result.

The travel strap is designed only to help keep the room extension secured against the coach sidewall to maintain an effective weather seal while the vehicle is in motion. It is not designed to withstand the force exerted by the room extension mechanism and will not prevent accidental extension of the room.

The travel latch is located near the floor at the front end of the slideout room.

To Release:

- Pull the strap buckle outward and up to release tension on strap.
- Pull a short length of the excess strap back through the buckle to provide sufficient slack.
- Unhook the strap end peg from the mooring bracket on the floor and wall edge. Store strap in location of your choice. (Under the couch is one choice.)

To Fasten Strap:

- Hook the strap end peg into the mooring bracket.

- Flip buckle downward and press toward strap until it "snaps" snugly into place against the strap.
- If a strap is loose or too tight after closing the buckle, release the buckle and pull the loose end of the strap in or out to adjust tension as needed. Then reclose the buckle.

NOTE: If latch becomes loose and will not stay fastened, see your dealer for proper adjustment.

WARNING

Keep all persons clear of the slideout room and moving parts while extending or retracting. Do not occupy the slideout room while it is being extended or retracted.

To Extend Slideout Room:

See Operating Safety Precautions before proceeding.

- Be sure the coach is level.
- Set Parking Brake.
- Release travel strap.
- To extend the room, press and hold the "OUT" button.

Press to Retract Press to Extend

- When the room has reached its full extension it will stop automatically.
- To stop the room during operation, release the button.

Before Retracting the Slideout Room:

1. Be sure the coach is level and the Parking Brake is set.
2. Check the outside of the coach to make sure that no obstacles exist between the outer wall flange and the outside sidewall of the coach.
3. Make sure that there are no obstacles that could interfere with the room's retraction on the inside of the coach.
4. If the slideout room has a couch or other furniture, make sure no people or pets are seated on them until the room has been fully retracted.

CAUTION

Although there is an awning over the roof of the slideout room, there is a possibility of debris getting onto the roof. Because the slideout roof is drawn into the interior of the coach when retracted, be sure there is no debris, such as excessive dirt, tree seeds, twigs, leaves, etc. on the roof before retracting.

To Retract the Slideout Room

See Operation Safety Precautions before proceeding.

To retract the room, press and hold the "IN" button.

Press to Retract Press to Extend

- To stop the room during operation, release the button.

- When the room has retracted completely, it will stop automatically.
- After the room has been retracted, refasten the safety travel straps.

Troubleshooting

Battery Voltage or Circuit Breaker Problems

If the slideout room will not work:

- the chassis battery may be low on charge. Press and hold the Aux Start switch on the dash to the Momentary (MOM) or Boost position while pressing the slideout control switch. This momentarily connects the coach batteries to assist in retracting the room.
- The circuit breaker may be tripped. The circuit breaker, labeled 'Slideout Power' is located on a panel on an interior wall of the passenger side storage compartment just behind or ahead of the entrance door.

Troubleshooting

Problems Retracting the Room

Set the Park Brake if the red Park Brake light flashes while pressing the Retract button.

*Not equipped on single mechanism systems

If an error is detected on your DigiSync Room Slide System, the green LED on the left side of the control panel will blink an error code. If an error code appears, see the On Board diagnostics section to determine the problem. The error code must be cleared prior to operating the room. To clear the error, press the "RESET" button with a small tool such as a toothpick. Before operating the room after an error has been detected, check for obvious faults such as obstructions prior to trying to operate the room again. If the error code appears again, the room will need to be retracted using either the manual retraction method or the fully manual method. Both methods listed below are intended as a means to retract the room to prepare the coach for travel to the nearest authorized Service Center.

To retract the room after an error is detected, you override the synchronization programming and operate the room in the Manual Mode.

Manual Mode:

Manual Mode lets you individually move the two room arms by pressing the IN and OUT buttons on the control pad. *This mode can be used only if there is not a motor failure or full electrical system failure.* To override the encoder and enter the Manual Mode, press and hold the RESET button until the two LEDs begin to flash.

While in the Manual Mode each of the two, room slide arms are activated by pressing and holding the IN and OUT buttons. The "OUT" button will retract the front arm. The "IN" button will retract the back arm. Both IN and OUT buttons may be held down at the same time to simultaneously activate both arms to retract the room. If one side of the room gets ahead of the other, release that button until the other arm catches up. The current limiting feature of the control still functions in the Manual Mode so each side can be fully retracted until it stops.

CAUTION

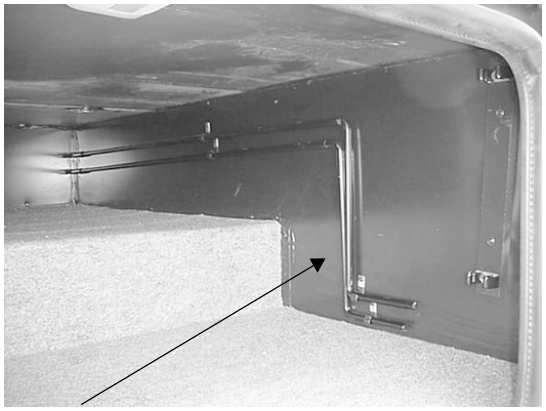
Never let one side get more than 2 inches (50 mm) ahead of the other while retracting.

Once the room has been retracted, the control will return to the automatic mode after 60 seconds. You can manually return to automatic mode by pressing the stop button.

In the event of a total system failure where Manual Mode cannot be used, two crank handles may be used to retract or extend the room.

Crank-In Mode:

If the room will not retract using the buttons and the mechanism is apparently malfunctioning, you may need to manually crank the room in to the travel position. The cranks are stored on clips on the wall of the right rear cargo compartment.

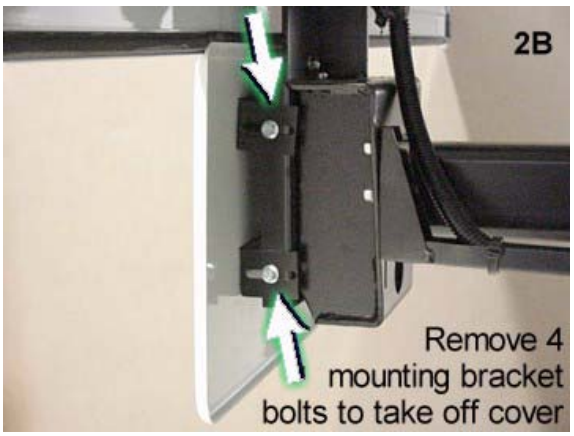


Slideout Cranks

The crank sockets are located behind covers on the lower portion of the room on the outside of the coach. Your coach may have one of the two types of covers shown.

Type A - Twin Arm - covers on lower face of room (photo 1A): Pry out the snap-in screw cover (photo 2A) and remove the screw to take off the cover plate. The crank socket is shown in photo 3.

Type B - Single Arm - cover mounted beneath face of slideout room: Remove the four bolts that fasten the cover to the arm - two on each side. The crank socket is shown in photo 3.



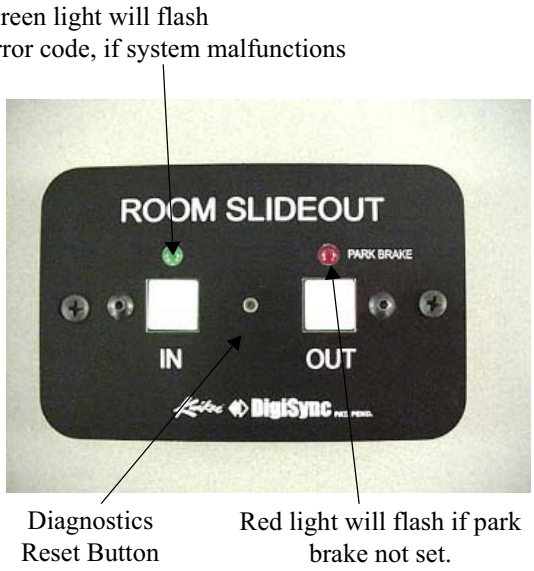
Insert the crank handle into the socket and align the notches in the crank handle with the pins on the drive shaft as shown in photo 3.

It may be necessary to move the handle slightly from side to side to fit it onto the shaft. The crank handle will only move the arm that it is inserted into. Consequently you will need to alternate between each crank handle on each side to move the room in or out. If help is available a second person cranking on the other handle simultaneously will greatly speed up the process. At no point in the cranking process should you let one side get more than 2 inches (50 mm) ahead of the other. The most effective way to retract the room using a single person is to crank one side ahead of the other, then crank the other side in ("walk" the room in).

Troubleshooting

Problems Extending the Room

Set the Park Brake if the red Park Brake light flashes while pressing the Extend button.



If an error is detected, the green LED on the left side of the control panel will blink an error code. If an error code appears, see the On Board diagnostics section to determine the problem. The error code must be cleared prior to operating the room. To clear the error, press the "RESET" button with a small tool such as a toothpick. Before operating the room after an error has been detected, check for obvious faults such as obstructions before trying to operate the room again. If the error code appears again, the room will need to be extended using the crank method described in the previous section. The crank method is provided as a means to extend the room if there is a failure in the automatic system. If the room must be extended using the crank method, keep in mind it is likely that it must also be cranked in to retract. After the outing is completed and the room is retracted fully, take the coach to the nearest authorized service center for inspection.

Error Codes -

The DigiSync slideout system is equipped with onboard diagnostics capabilities. In the event of a system failure the green LED on the left side of the control panel will blink to display several possible error codes. An error code will not be displayed unless the "IN" or "OUT" control panel buttons has been pressed. For example, the control panel will not display an error code for low battery voltage unless you are trying to extend or retract the room when low voltage is present. Therefore it is a good idea if you have an error code to write down which error code you experienced to report it to your authorized service center. This information will help the service technician identify the cause of the problem that you experienced.

When an error is detected, the green LED on the left side of the control panel will blink. The error code can be determined by counting the number of flashes in between each pause. See the Error Codes Key below for details. The error code may be cleared at any time by pressing reset, or by allowing the system to 'time out' after 60 seconds. Once cleared, the operation can be tried again. If the error code appears again, see Manual Mode and or Crank Mode.

ERROR CODES		
#Flashes	**Problem**	**Description**
1	Unit Timed Out	*(ran for 60 sec without reaching end of stroke)*
3	Battery Voltage less than 10 volts	*(detected when move requested)*
4	Battery Voltage less than 8 volts	*(detected during move)*
5	Battery Voltage greater than 18 volts	*(detected when move requested)*
6	Stall on Rear Actuator only	*(Indicates obstruction at rear of room or jam)*
7	Stall on Front Actuator only	*(Indicates obstruction at front of room or jam)*
8	Short Detect on Rear Motor	*(Rear motor is faulty or wiring harness faulty)*
9	Short Detect on Front Motor	*(Front motor is faulty or wiring harness faulty)*
10	No Current Detect on Rear Motor	*(Rear motor is faulty or wiring harness faulty)*
11	No Current Detect on Front Motor	*(Front motor is faulty or wiring harness faulty)*
12	No Encoder Signal detected on Rear Actuator	*(Faulty encoder/harness)*
13	No Encoder Signal detected on Front Actuator	*(Faulty encoder/harness)*
14	Rear Actuator did not re-sync with Front Actuator within 5 seconds	
15	Front Actuator did not re-sync with Rear Actuator within 5 seconds	

Note: Manual Mode and corresponding Front and Rear Actuator locations
Front Actuator: Retract/In button
Rear Actuator: Extend/Out button

See your dealer for service of the slideout system before using again.

Further Information

See the DigiSync Slideout Room operating guide included in your Owner InfoCase for further instructions and troubleshooting information.

BEDROOM SLIDEOUT EMERGENCY RETRACTION PROCEDURE - Model 329B

1. Locate the tools in the right front side storage compartment - a ratchet wrench, a hex-end shaft and an extension shaft. (The ratchet wrench may be packaged in the Owner InfoCase.)

2. Locate the small, round access hole in the bed base at the foot of the bed.

3. Attach the shaft extension to hex-end shaft and place the ratchet wrench onto the hex end shaft, then insert into the hole in the bed base as shown.

4. The slotted end of the tool must engage with the pin in the endshaft on the slideout gear assembly. See arrow in close-up detail.

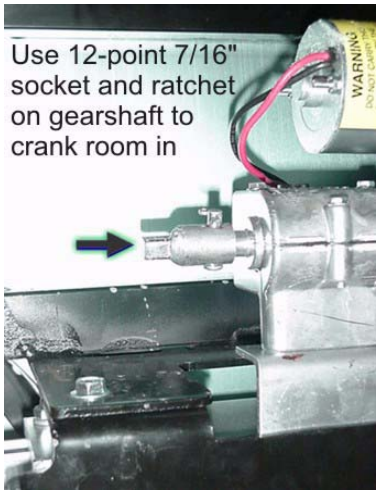
5. Crank the ratchet wrench clockwise (to the right) to retract the room. The tool will extend nearly a foot out of the bed base at first, but will be drawn into the bed base as the room is retracted. This is a slow process that will take some time and quite a few turns of the wrench.
6. As the room retracts, the bed base will move away from the gear endshaft, which will eventually cause the tool to lose of contact with the shaft. When this happens you must raise the bed, remove the access cover to access the gear endshaft, and continue using the wrench and hex shaft only as shown.

Emergency Crank-In Mode: (Model 327L)

If the room will not retract using the buttons and the mechanism is apparently malfunctioning, you may need to manually crank the room in to the travel position.

Use a ratchet wrench with a 7/16” socket on the motor gearshaft to manually crank the room inward. (model 726A requires a 12-point socket).

The motor/gear assembly is located beneath the vehicle near the rear ‘ram’ shaft of the slide-out room, just ahead of the driver side rear tires.



Model 327L - View of motor/gear

Crank the room in until it is just ‘snugged up’. Do not overcrank or you could damage the gear assembly.

Fasten the travel strap before driving the vehicle to your dealer for service of the slideout mechanism.

See your dealer for service of the slideout system before using again.

Further Information

See the Slideout Room operating guide included in your Owner's InfoCase for further instructions and troubleshooting information.

GENERAL SLIDEOUT CARE

- Wipe outer seals occasionally with talc or 303 brand protectant for smooth quiet operation.
- Clean the floors inside before retracting the room to avoid vinyl flooring scratches or carpet pile snags.
- Be sure there are no obstruction items at end of bed or behind the driver seat or in compartments. Some items could be crushed or cause damage to floor covering or cabinets when the room is retracted.
- See your authorized dealer for regular maintenance and service of the mechanism and hydraulic system.

SECTION 14 CARE & MAINTENANCE

SEALANTS

Water is a recreational vehicle's worst enemy when it is allowed to enter where it's not intended. Sealants perform a very important function and should be inspected closely and maintained regularly. Winnebago Industries utilizes many different types of sealants.

Refer to Sealants Specification page at the end of this Section.

Sealants, in general, do not have "set" lifetimes. Varying environmental factors affect the pliability and adhesiveness of sealants. You or your dealer must:

- Inspect all sealants, a minimum of every six months. (A quick walk around before trips will help prevent potential problems during trips and vacations.)
  - * Inspect the moldings, windows, clearance lights, compartment doors and all their attachments.
  - * Check for cracks, voids, gaps, breaks, adhesion, and any sign of physical deterioration.

NOTE: Proper sealant inspection includes not just visual observation but running a finger along sealant seams to verify proper adhesion to the surface. Any loosened areas must be replaced.

- Have the sealant replaced if you notice any of the above. Your local Winnebago Industries dealer has the correct and necessary parts and experience to help you maintain your sealants.
- Always use the same type sealant that was removed.
- Immediately have dealership check moldings, windows and exterior attachments for leak source if you notice water inside of unit.

CAUTION

Sealants must be inspected every 6 months and resealed if necessary.

ROOF

The roof is made of Thermo-Panel materials like the walls and floor. It will support the weight of an average adult should it become necessary to repair the roof or roof mounted components. It is not recommended, however, that very large or heavy objects be carried on the roof while the vehicle is in motion. (See Section 3 for roof loading specifications.) Always have damage to the roof area repaired immediately. Damaged or detached sealant around the vents, air conditioner, body-to-roof seams, etc., should also receive immediate attention. Delaying these repairs may allow water leakage and result in damage to interior ceiling and body panels, upholstery, etc., which is not covered by the limited warranty.

UNDERBODY

Buildup of mud and dirt under the body can cause damaging rust on steel parts and can add needless weight to the vehicle. This, in effect, reduces the amount of cargo you can carry and remain within GVWR and GAWR limits.

Corrosive materials, such as those used for ice and snow removal and dust control, also accumulate on the underside of a vehicle. These materials should be removed by flushing the underbody regularly with water, especially areas where mud and other foreign materials collect.

NOTE: Anytime an RV technician is beneath the coach or it is on a hoist for service, have the underbody and chassis checked for proper condition, clearance and routing of hydraulic hoses and wires for slideout rooms to avoid kinks or leaks and pinched wires, etc.

EXTERIOR FINISH

The exterior surface of your motor home has an automotive type finish. Frequent washing and thorough cleaning is recommended to prevent damage to the vehicle finish after exposure to damaging salts, calcium chloride, road tar, tree sap, insects and other foreign material. Never wash the vehicle in direct sunlight, while the vehicle surface is hot, or using hot water.

Do not use strong soaps or detergents for washing the motor home. Always use a mild soap in warm water, a commercially prepared product for cleaning automotive finishes or your local car wash. Be careful when using pressure-type washers to avoid loosening exterior decals or sealants, etc.

NOTE: Avoid aiming water flow from a hose or spray from high pressure washing equipment into any appliance intake because damage or difficulty in operating appliances may occur.

After washing the motor home, carefully inspect caulking around window frames and vents and any other joints that may have separated. Recaulking, if necessary, is quite simple. Appropriate compounds are sold at Winnebago and Itasca dealers, and the materials are quickly and easily applied. Also, inspect weather seals around door, etc., and if necessary have a dealer replace them immediately.

CAUTION

Never use a strong solvent such as lacquer thinner, or harsh abrasives on painted surfaces.

Waxing and Polishing

When water will not bead up and roll off the finish of your freshly washed vehicle, it's time to apply a new coat of wax to the finish. Wax not only improves the appearance of the vehicle, but protects the finish against oxidation and corrosive substances.

We recommend using a wax that is compatible with painted and gel-coated fiberglass finishes.

If the finish begins to look dull or discolored, it may need to be cleaned with a polishing or cleaning compound.

NOTE: If you use a polish or a cleaning compound that does not contain a wax preservative, we recommend reapplying a coat of hard wax after cleaning or polishing the finish.

Care of Stripes and Decals

The pressure-sensitive decals on your coach require very little maintenance. They should be treated like any painted surface on your vehicle. Here are a few helpful hints on caring for decals:

- Wash decals with plain soap and water or any retail car wash soap. Always rinse thoroughly.
- High pressure water spray may damage decals and paint.
- Test any cleaning solution on a small section of decal before using.
- Do Not use any aromatic solvents such as acetone, MEK, toluene, xylene, etc., on decals. Any solvent including alcohol may soften or smear colors.
- Do Not use lacquer thinner on paint or decals. Do Not overcoat decals with clear paint.
- Do Not let gasoline or other fuels drip and stay on decals for any length of time. Rinse immediately.

HEADLIGHTS AND EXTERIOR LIGHTS

Exterior Light Lenses

Most Winnebago Industries vehicles have poly carbonate lenses on exterior lamps, which are very sensitive to a variety of chemical solvents and cleaners.

Use only soap and water to clean exterior lamp lenses - especially headlights!

- Contact with certain chemicals can cause etching, 'crazing' or cracking of the lens, which can significantly reduce the lens clari-

ty and effectiveness of the lamp and may require replacement of the complete lamp housing.

- Some popular citric acid cleaners may cause bicarbonate lenses to become 'hazy' or 'foggy'.
- Do not use a pressure washer to clean headlights.
- Inspect and operate the lights regularly to confirm proper operation and mounting condition.

Headlight Moisture

Your coach is equipped with composite headlights which contain replaceable halogen 'bulb' elements, common to most current automobiles. This type of head lamp assembly is not sealed from atmosphere and is designed with a moisture venting system.

Because they are not sealed, under 'dew point' conditions the headlights may exhibit signs of humidity condensation on the reflector surface and lens, such as small droplets of water or 'fogging over'.

If this happens, drive with the headlights on so the moisture can evaporate and expel through the venting system designed into the head lamp assembly.

Also avoid aiming high pressure wash sprays directly at the head lamp assemblies.

NOTE: Because RV's are often parked for long periods, we recommend that you check your headlights periodically for accumulated moisture. If moisture remains on the reflector surfaces or lenses for a long period, it can cause water stain marks or other damage. If there is moisture in the head lamp, the head lamp manufacturer recommends turning on the headlights for several hours or as necessary to evaporate and vent the moisture.

UPHOLSTERY, CARPETING AND DRAPERIES

We recommend a weekly routine of vacuuming all fabrics and carpet throughout the motor home to prevent an accumulation of dirt which can detract from the appearance and shorten the life of carpet and fabrics.

Carpet Care & Cleaning

See the carpet manufacturer's Carpet Care Guide in your Owner InfoCase. It includes detailed information on cleaning soils and removing stains from the fine carpet in your coach.

Upholstery

Some fabrics used in this motor home may contain fire retardant and lightfastness additives which can be damaged by use of improper cleaning products. Some water-based household cleaning products are not formulated for use on fabrics and may cause excessive shrinkage or fading. Always test any cleaning product on a hidden area of fabric before using on visible areas. For best results, fabric cleaning should be referred to a professional carpet and upholstery cleaner.

NOTE: To minimize fading of upholstery, carpets and other interior fabrics caused by excessive sunlight, the drapes, blinds or shades should be closed when the motor home is parked for an extended period of time.

⚠ WARNING

When cleaning upholstery and fabric, do not use lacquer thinner, nail polish remover, laundry soaps, or bleach. Never use carbon tetrachloride, gasoline, or naptha for any cleaning purpose. These materials may cause damage to the material being cleaned and most are highly flammable.

Spots and Stains

Spots or stains should be treated as soon as possible before they "set in" to avoid permanent damage. Always start from the outside of a spot

or stain and work inward to avoid spreading it. Use a clean cloth or sponge and turn frequently to an unused area of the cloth or sponge as you clean.

Some stains or soils, such as lipstick, ink, grease or mustard, are extremely difficult or impossible to remove completely and should receive immediate attention. Consult a professional carpet and upholstery cleaner for assistance.

Vinyl Fabrics

Vinyl should be cleaned with a soft, damp cloth, and a mild detergent only. Do not use solvents. Solvents may damage the surface of the vinyl.

Draperies, Curtains and Bedspreads

These items may be woven from a variety of fabrics. We recommend that these be professionally dry cleaned only. A five percent shrinkage may occur when you have these items dry cleaned.

Leather Upholstery

Driver/Co-Pilot Seats & Sofa - (Optional)

The optional leather seats are made of top quality cattle hide soft leather.

- We recommend using a mild soap and water applied gently to the solid areas. Buff dry immediately with a soft cloth to avoid water spotting. Avoid harsh and excessive rubbing while cleaning. Soft leather needs delicate care.
- Never use harmful substances (e.g. stain removers, solvents, saddle soap, shoe polish or other unsuitable fluids) on soft leather. Cleaning and touch-up kits specifically formulated for leather upholstery are available from most fine furniture dealers.

CARE OF CEILING FABRIC

While using your coach, your ceiling fabric may become soiled and require spot cleaning from time to time. The following information is provided as a guideline for care and cleaning of ceiling fabrics used in your coach. (See cleaning chart on following page.) These materials are made from polypropylene or polyester synthetic fibers, so they clean very well with virtually no damage to the color or fabric itself.

Most commercially available carpet and upholstery cleaners will do an excellent job removing stains. From time to time, additional cleaning methods may need to be used to remove stubborn or difficult stains.

General Stains

As with any stain or contamination, the quick response is the best, especially when done in conjunction with the proper cleaner for the type of stain.

Type of Stain	Cleaning Agent	How to Remove
Mustard	Dry-Clean Solvent	Scrub-Soak-Blot Dry
Ketchup*	High Strength Detergent	Scrub-Soak-Blot Dry
Coffee*	High Strength Detergent	Scrub-Soak-Blot Dry
Chocolate*	Detergent	Scrub-Soak-Blot Dry
Tea	High Strength Detergent	Scrub-Soak-Blot Dry
Chewing Gum	Dry-Clean Solvent	Scrub-Soak-Blot Dry
Oil	High Strength Detergent	Scrub-Soak-Blot Dry
Grease	High Strength Detergent/ Degreaser	Scrub-Soak-Blot Dry
Tar/Asphalt	K-1 Kerosene/Thinner	Scrub-Soak-Blot Dry
Wax	Detergent	Hot Iron on Detergent-Soaked Towel or cloth
Rust	Rust Remover	Scrub-Soak-Blot Dry
Dirt*	Detergent	Scrub-Soak-Blot Dry
Lipstick	Dry-Clean Solvent	Soak-Blot Dry
Nail Polish	Dry-Clean Solvent	Soak-Blot Dry
Shoe Polish	Dry-Clean Solvent	Soak-Blot Dry
Crayon	High Strength Detergent	Scrub-Soak-Blot Dry
Marker (indelible)	Detergent	Scrub-Soak-Blot Dry
Ink (Ballpoint Pen)	Dry-Clean Solvent	Soak-Blot Dry
Pencil Lead (Graphite)	Detergent	Scrub-Rinse-Blot Dry
Vomit*	High Strength Detergent	Scrub-Rinse-Blot Dry-Deodorize w/Vinegar
Urine*	High Strength Detergent	Scrub-Rinse-Blot Dry-Deodorize w/Vinegar
Blood*	High Strength Detergent	Scrub-Rinse-Blot Dry
Excrement*	High Strength Detergent	Scrub-Rinse-Blot Dry-Deodorize w/Vinegar

NOTE: In many cases listed above, repeated steps may be required to fully extract contaminant from material. Items listed above with (*) may also be removed through steam extraction method by a professional cleaner or service.

NOTE: Always check to see that the cleaner used will not cause damage to the material or fabric by testing on an area out of sight.

Water Stains

Water stains should be cleaned with a mixture of 1/4 cup of white powdered or clear liquid laundry detergent (no coloring) in a bucket of warm water. Working with a clean sponge or white cloth, start from the outside of the stain and work your way to the center. This method will keep the stain from spreading. Do not over saturate as this may cause de-lamination. No need to scrub, simply rub lightly or dab the stain.

You may have to repeat this procedure more than once to achieve desired results. Finish up with clean water, using the same method, and blot dry. REMEMBER, this is polypropylene, basic plastic, so do not be afraid to clean it.

Steam cleaning is also an option. Again, take care not to over-saturate the material.

CABINETRY

Wooden items may be cleaned with a soft cloth and a good quality wood finish cleaning product.

Vinyl simulated wood (Plus-Wood) panels may be cleaned with a mild, water based cleaner and a soft cloth. Do not use solvents on vinyl wood panels.

NOTE: Many cabinetry and furniture items throughout this motor home are constructed either partially or completely of real hardwoods. Because of natural variations in woodgrain density, slight differences in stain hue may exist between one item and another. This is the distinctive character and beauty of real wood.

VINYL WALLBOARD

Decorative vinyl covered wallboards may be cleaned with a mild solution of water and isopropyl (rubbing) alcohol or a mild soap solution. Do not use solvents or abrasive cleaning products.

TABLES AND COUNTERTOPS

Work surfaces are covered with a plastic laminate that resists solvents, stains and abrasions. A coat of furniture wax applied to these surfaces on the counters and table will help preserve their beauty and make cleaning easier. Always clean the surface before applying wax.

GALLEY SINK

Care and Cleaning Instructions

The galley sink is made from a remarkably tough material and has been designed and engineered to resist scratches and should not stain under normal household use if used properly. To keep this product looking brand new and shiny, we recommend that you take a few easy precautions.

- **Do Not use abrasive cleaners or scouring powders.** Use of an abrasive cleanser will dull or damage the surface of this product and could leave scratches. We recommend you use a spray window cleaner or household cleaner made for fiberglass, acrylic, or solid surface products.
- **Do Not use scouring pads,** steel wool, "Scotch Brite®" type scratch pads, or any other abrasive scrubbers. Wipe only with a soft cloth or sponge.
- **Always use a cutting board** or a sink protector when using knives or sharp objects. We recommend that you use protective mats, racks, or dishpans to help protect your sink.
- **Always allow pans to cool** before setting them in your sink.

NOTE: Improper use may damage this product and void the warranty.

RANGE AND REFRIGERATOR

For care and appearance maintenance of the range and refrigerator, refer to the operation and maintenance manual for each of the individual appliances included in your Owner InfoCase.

BATHROOM

The tub and shower walls in the bathroom should be cleaned with a mild soap and water solution, or (to obtain maximum luster) use a good quality wax cleaner. Do not use an abrasive cleaner on the shower walls and tub.

The bathroom lavatory is also a molded composite material and should be cleaned with a mild soap and water solution. Abrasive cleaners or harsh detergents should not be used. The bathroom lavatory cabinet sink is made of the same composite material as the galley sink. Do not use abrasive cleaners, harsh detergents or solvents. Refer to the Galley Sink - Care and Cleaning Instructions.

For instructions on the care of your toilet, refer to the information in your Owner InfoCase.

DOORS AND WINDOWS

Windows may be periodically cleaned with a good quality glass cleaner or mild soap solution using a soft cloth. Use care when removing ice or frost from the windows. Always use a plastic ice scraper, never one made of metal. Use care when removing ice from the mirrors to protect the reflective surfaces.

Door locks and hinges should be lubricated periodically with powdered graphite to ensure trouble-free operation and to protect against freeze-up.

DAY/NIGHTER BLINDS

Tension Adjustment:

The tension of the pleated blinds can be adjusted if they become loose and will not stay up when raised, or they are too tight and are difficult to raise and lower.

To tighten the tension, simply wrap the lower end of the guide cords (on each side of the shade) a few turns around the spools at the lower corners of the blinds.

To loosen the tension, unwrap the guide cords from the spools one turn at a time until desired tension is achieved.

Preserving Shape:

The pleated blinds are made using high quality materials that are designed and woven to retain their shape throughout their useful life. They may lose their crisp shape, however, if left in a lowered position for an extended period of time without being raised periodically. If this happens, the pleats can be restored using this simple method.

- With the blind fully lowered, dampen the entire area of the pleats with a good quality laundry sizing spray.
- Raise the blind fully while still damp and let it remain in the raised position for about 24 hours, until the sizing has dried and “set”.
- Reapply sizing periodically (every few months) as needed.

Coach Maintenance Chart

These recommendations apply for normal recreational use. Heavy duty or full-time use may require more frequent maintenance intervals.

Always use specified sections or manufacturer's guide for further information and instructions.	Before Each Use	Weekly	Monthly	Every 3 Months	Every 6 Months	Every Year	As Necessary
Safety Equipment							
Check operation of the following items							
Headlights, Taillights and Marker Lights	◆		◆				
Turn Signals	◆		◆				
Horn	◆		◆				
Hazard Warning Flashers	◆		◆				
Windshield Wipers & Washers	◆		◆				
Fire Extinguisher - check charge indicator (Sect. 3)	◆		◆				
Smoke Alarm - test operation * (Sect. 3)	◆		◆				
Carbon Monoxide Alarm - test operation * (Sect. 3)	◆		◆				
LP Gas Alarm - test operation (Sect. 8)	◆		◆				
(*replace battery if needed)							
Appliances (See Section 6)							
Water Heater							
See water heater manufacturer's maintenance guide							◆
Inspect & clean exterior vent	◆						◆
Refrigerator							
Refrigerator maintenance guide							◆
Inspect and clean exterior vent & drip tray drain tube	◆						◆
Furnace							
See furnace manufacturer's maintenance guide							◆
Inspect & clean exterior vent	◆						◆
Air Conditioner							
See A/C manufacturer's maintenance guide							◆
Inspect for exterior damage				◆			◆
							◆
Range Top							
See range manufacturer's maintenance guide							◆
Inspect & clean/replace range hood grease filter							◆

Coach Maintenance Chart

These recommendations apply for normal recreational use. Heavy duty or full-time use may require more frequent maintenance intervals.

Always use specified sections or manufacturer's guide for further information and instructions.	Before Each Use	Weekly	Monthly	Every 3 Months	Every 6 Months	Every Year	As Necessary
LP System (See Section 8)							
Have LP system checked for leaks.						◆	◆
Pressure regulator - inspect and adjust if needed						◆	
Check LP tank condition, mounting and fittings						◆	
Electrical System (See Section 9)							
Check Battery Condition Meter	◆						
Check battery fluid level & connections			◆				
Check 12V fuses & 120V breakers							◆
Check GFI Receptacles			◆				
Generator (See Section 9)							
Visually inspect Generator and Compartment	◆						
See generator manufacturer's maintenance guide							◆
Plumbing System (See Section 10)							
Sanitize plumbing system							◆
Winterize plumbing system							◆
Clean water pump strainer filter						◆	◆
Electric Slide-Out (See Section 13)							
Check & inspect room seals (bulb seals)					◆		◆
Exterior (See Section 14)							
Clean roof				◆			◆
Clean sidewalls			◆				◆
Clean windows							◆
Flush underside of vehicle				◆			◆

Coach Maintenance Chart

These recommendations apply for normal recreational use. Heavy duty or full-time use may require more frequent maintenance intervals.

Always use specified sections or manufacturer's guide for further information and instructions.	Before Each Use	Weekly	Monthly	Every 3 Months	Every 6 Months	Every Year	As Necessary
Sealants (See Section 14)							
Inspect (see Sect 14 for proper inspection technique).					◆		◆
Replace							◆
Frame & Chassis (See Section 15)							
Follow Chassis manufacturer's maintenance guide							◆
(Refer to Chassis Owner's Manual)							◆
Inspect Hitch Receiver (if towing)	◆						
Tires							
Check & adjust air pressure	◆						◆
Check tread wear	◆						◆
Check front end alignment and adjust if needed							◆
Miscellaneous							
Lubricate locks, hinges, latches						◆	◆

SECTION 15 CHASSIS

CHASSIS SERVICE & MAINTENANCE

Consult the appropriate sections in your chassis operating guide for specific information regarding operating safety, service recommendations and maintenance schedules for the chassis section of your motor home.

ENGINE ACCESS

Refer to your Ford chassis operating guide.

ENGINE COOLING SYSTEM

Refer to your chassis operating guide for information and precautions on filling, servicing and checking the fluid level.

NOTE: The coolant system MUST be refilled or topped up with the same type of coolant as equipped to maintain the special long-life properties.

CAUTION

When refilling the coolant system of a vehicle equipped with a rear auxiliary automotive heater and motoraid water heater, be sure to allow for additional coolant capacity of the heater and its supply and return hoses.

TIRES

Low air pressure results in tire overloading and abnormal wear and also affects handling and fuel economy. Obtain proper inflation pressures from your chassis operating guide or tire manufacturer.

WARNING

Make sure all replacement tires are of the same size and ply rating as those installed as original equipment.

See the Vehicle Certification Label affixed to the driver's door for tire information.

SUSPENSION ALIGNMENT AND TIRE BALANCE

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

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

Alignment can be affected by worn steering/suspension parts or by incidents which happen during driving, such as hitting a curb, pothole or railroad track, etc. Improper alignment can cause tires to roll at an angle and wear unevenly. It may also cause the vehicle to "pull" to the right or left. Have your dealer inspect your vehicle's suspension and steering components periodically for misalignment or wear.

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

See your chassis operating guide for further information.

REAR AIR SPRINGS
Optional - 29' & 31' models

Check and adjust the air bag pressure periodically to maintain optimal ride and handling characteristics according to cargo weight.

Min. press.: 20 p.s.i.
Max. press.: 100 p.s.i.

Air Spring Valves

Rear Air Spring Valves
located inside left rear wheel well

WINDSHIELD WASHERS AND WIPERS

See your chassis operating guide for recommendations and precautions regarding washers and wipers.

LIGHTS

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

The headlight circuit is protected by a circuit breaker. An overload on the breaker will cause the lights to flicker on and off. Headlight wiring should be checked immediately anytime this condition is apparent. Refer to your chassis operating guide for further information.

AUTOMOTIVE 12-VOLT FUSES AND CIRCUIT BREAKERS

The automotive fuses and breakers are protected from short circuit and overload conditions by a fuse block. On most models, this is located beneath the dash to the left side of the steering column. See your chassis operating guide for additional fuse replacement information.

Always replace plug-in type fuses with those of the same amperage size.

Maintenance

- Do not remove the radiator cap while engine and radiator are still hot. Always check coolant level visually at the see-through coolant reservoir.
- Never get beneath a vehicle that is held up by a jack only.
- Do not mix different construction types of tires on the vehicle such as radial, bias or belted tires, as vehicle handling may be affected. Replace tires with exact size, type and load range.
- Do not attempt to start the vehicle by hot-wiring.

TOWING GUIDELINES
Gross Vehicle Weight Rating (GVWR):

This is the maximum allowable weight of the fully loaded vehicle. Included are fuel, water, LP, passengers, cargo, tools, and optional equipment installed by the motor home manufacturer, dealer, or owner. This value is found on the VIN label, typically placed near the driver position.

Gross Axle Weight Rating (GAWR):

This is the total weight a given axle is capable of carrying, measured at the ground. Each axle has its own rating. These values are also found on the VIN label: front, rear, and tag, if applicable.

Gross Combination Weight Rating (GCWR):

This is the maximum allowable weight of the motor home and loaded trailer, including the items noted in GVWR above. The "trailer" can be an actual trailer, a vehicle towed on a towing dolly, or a vehicle towed by means of a towing bar. GCWR is typically specified based on durability and performance of the tow vehicle drivetrain: engine cooling systems, transmission, drive line, drive axle, and others. The tow vehicle brakes may be rated for operation at GVWR, not GCWR.

NOTE: If the "trailer" weighs 1,000 lbs. or more, state or provincial laws/regulations may require the "trailer" to be equipped with brakes that are activated when the motor home brakes are applied. ***The user is responsible to know and understand the laws of the state or province being traveled.*** *The Department of Transportation in a given state or province should be able to provide specific information.*

Hitch Ratings:

SAE Standard J684 defines
Class 1 trailers as "GVWR not to exceed 2,000 lbs.";
Class 2 trailers as "GVWR over 2,000 lbs. and not to exceed 3,500 lbs. GVWR";
Class 3 trailers as "GVWR over 3,500 lbs. and not to exceed 5,000 lbs. GVWR";
Class 4 trailers as "GVWR over 5,000 lbs. and not to exceed 10,000 lbs. GVWR".

Hitches are to be permanently marked with "Maximum trailer GVWR to be drawn" and "Maximum vertical tongue weight to be imposed..." The SAE standard does not specify a vertical load rating, as such. Traditionally, hitches are labeled 3,500/350 as Class 2 and 5,000/500 as Class 3.

The vertical tongue load value of 10 percent of drawn rating apparently comes from the collective experience that 10 percent is the minimum value that provides stable towing of a trailer. Ford's towing guide suggests 10 to 15 percent for trailers over 2,000 lbs. (Hitch ratings are independent of towing vehicle ratings.)

NOTE: Some Winnebago Industries models equipped with a Class 3 hitch may have a label limiting vertical tongue load to 350 lbs.

The user must verify that the hitch equipment being used is adequate for the application.

CAR OR TRAILER TOWING

Hitch pulling capacity:5,000 lbs. max.
Tongue weight:350 lbs. max.

The factory installed towing hitch on this coach is capable of pulling 5,000 lbs. load (max.); however the vertical (tongue) weight may vary according to chassis and model combinations. Do not exceed either the GVWR, the rear axle GAWR, or the chassis GCWR by the combined loaded weight of the coach and the towed vehicle. *See preceding items "Loading the Vehicle" and "Weighing Your Loaded Vehicle" for explanation of weight ratings*.

Because of individual vehicle use and loading habits, we recommend weighing the vehicle while fully loaded to avoid exceeding any of the listed Gross Weight Ratings. See "Vehicle Certification Label" in the Introduction Section for information on gross weight ratings.

Towing will affect vehicle handling, durability and fuel economy. Exceeding any of the listed Gross Weight Ratings will result in unacceptable overall vehicle performance. Maximum safety and satisfaction when towing depends on proper use of correct equipment. Select a drawbar that mates properly with the towing hitch receiver and provides proper alignment to the vehicle tow bar. The tongue of the tow bar must be as close as pos-

sible to parallel with the ground when attached to the hitch ball.

Installation of a proper trailer brake system is recommended. Check state regulations on trailer weight and trailer brake requirements to be sure you select the right equipment before towing.

NOTE: If you tow a car or trailer that weighs over 1,000 lbs., it must be equipped with automatically activated brakes.

Before descending a steep or long grade when towing a trailer, reduce speed and shift into a lower gear to control vehicle speed. Avoid prolonged or frequent application of brakes which could cause overheating and brake failure.

WARNING

For safety towing and vehicle handling, maintain proper trailer weight distribution.

The total weight of the motor home and the vehicle towed must not exceed the Gross Combined Vehicle Weight rating. Contact the chassis manufacturer to obtain the Gross Combined Vehicle Weight rating for your chassis.

CAUTION

Exceeding any of the recommended gross vehicle weight ratings may result in vehicle damage.

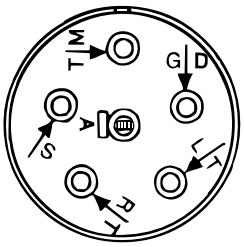
Do not install a frame equalizing type hitch on your vehicle.

TRAILER WIRING CONNECTOR

Your coach is pre-wired for trailer or car towing lights with a 6-pin socket on the rear bumper. The connector plug is supplied in the coach parts package provided to you by your dealer when you took delivery of the vehicle.

The diagram shows proper connection of trailer or tow vehicle wiring to the coach light system. We recommend connections be made by a qualified auto electrical technician to avoid 'shorts' or other malfunctions.

TM = Tail lights
GD = Ground
LT = Left turn/brake
RT = Right turn/brake
A = Backup lights
S = Not Used



Minnie

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