

# *Odyssey*

**owner's manual**

## **SAFETY REGULATIONS REGARDING LP GAS SYSTEMS AND LP GAS APPLIANCES**

The manufacturer of this recreational vehicle is required to furnish the following consumer information as provided by the National Fire Prevention Association and the American National Standards Institute. The information and warnings found here may also be found in other sections of this Owner's Manual. Please see sections titled "Liquid Petroleum Gas System" and "Appliances" for other safety and operating information.

### **WARNING:**

LP GAS CONTAINERS SHALL NOT BE PLACED OR STORED INSIDE THE VEHICLE. LP GAS CONTAINERS ARE EQUIPPED WITH SAFETY DEVICES WHICH RELIEVE EXCESSIVE PRESSURE BY DISCHARGING GAS TO THE ATMOSPHERE.

### **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. AND
2. OPEN WINDOW.

THIS WARNING LABEL HAS BEEN LOCATED IN THE COOKING AREA TO REMIND YOU TO PROVIDE AN ADEQUATE SUPPLY OF FRESH AIR FOR COMBUSTION. UNLIKE HOMES, THE AMOUNT OF OXYGEN SUPPLY IS LIMITED DUE TO THE SIZE OF THE RECREATIONAL VEHICLE. AND PROPER VENTILATION WHEN USING THE COOKING APPLIANCES(S) WILL AVOID DANGERS OF ASPHYXIATION. IT IS ESPECIALLY IMPORTANT THAT COOKING APPLIANCES NOT BE USED FOR COMFORT HEATING AS THE DANGER OF ASPHYXIATION IS GREATER WHEN THE APPLIANCE IS USED FOR LONG PERIODS OF TIME.

### **WARNING:**

PORTABLE FUEL-BURNING EQUIPMENT, INCLUDING WOOD AND CHARCOAL GRILLS AND STOVES, SHALL NOT BE USED INSIDE THIS RECREATIONAL VEHICLE. THE USE OF THIS EQUIPMENT INSIDE THE RECREATIONAL VEHICLE MAY CAUSE FIRES OR ASPHYXIATION.

### **WARNING:**

DO NOT BRING OR STORE LP GAS CONTAINERS, GASOLINE, OR OTHER FLAMMABLE LIQUIDS INSIDE THE VEHICLE BECAUSE A FIRE OR EXPLOSION MAY RESULT.

A warning label has been located near the LP gas container. This label reads: **DO NOT FILL CONTAINER(S) TO MORE THAN 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.

The following label has been placed in the vehicle near the range area:

### **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 valves or gas supply connection.
4. Open doors and other ventilating openings.
5. Leave the area until odor clears.
- S. Have the gas system checked and leakage source corrected before using again.

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

# TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>1</b>	LP Gas Regulator .....	10
Front End Alignment .....	1	Using LP Gas System at Low Temperatures .....	10
<b>PLANNING AND PREPARATION</b> .....	<b>2</b>	LP Gas System Leak Checks .....	10
Read the Book .....	2	Lighting LP Gas Appliances .....	10
Inspect and Maintain .....	2	LP Gas Precautions .....	11
Loading and Weight Distribution .....	2	<b>PLUMBING</b> .....	<b>12</b>
Control of the Motor Home .....	2	Fresh Water System .....	12
<b>MOTOR HOME LOADING</b> .....	<b>3</b>	The Water Pump .....	13
Determining and Distributing		The Monitor Panel .....	13
Your Motor Home Load .....	3	Troubleshooting the Fresh Water System .....	13
Loading Tips .....	3	Water Pump Troubleshooting .....	14
<b>READY TO LEAVE</b> .....	<b>2</b>	The Waste Water System .....	15
Starting and Warmup .....	2	Water System Winterizing .....	16
Safety Belts .....	2	<b>ELECTRICAL SYSTEM</b> .....	<b>18</b>
<b>ON THE ROAD</b> .....	<b>4</b>	Batteries .....	18
Driving and Parking .....	4	Power Converter .....	19
Miscellaneous Safety Tips .....	4	Auxiliary Battery .....	19
Carbon Monoxide Safety Precautions .....	4	Fuses and Circuit Breakers .....	19
Overheating .....	5	Ground Fault Interrupter .....	19
12-Volt Fuse Replacement .....	5	Entertainment Equipment .....	20
Tires .....	5	Generator Power Plant .....	20
Changing A Flat Tire .....	5	Electrical System Wiring .....	21
Towing .....	7	<b>APPLIANCES</b> .....	<b>22</b>
<b>SERVICE</b> .....	<b>8</b>	Water Heater .....	22
Auxiliary Start System .....	8	Furnace .....	22
Automotive Air Conditioner .....	8	Range .....	22
Motor Home Chassis Operator's Manual .....	8	Range Exhaust Hood .....	22
Service Parts and Replacement .....	8	Air Conditioner .....	22
Battery Service .....	8	Refrigerators .....	22
Generator Power Plant System Service .....	8	<b>MAINTENANCE</b> .....	<b>23</b>
<b>INTERIOR AND FURNISHING</b> .....	<b>9</b>	Exterior .....	23
Storage .....	9	Sealant Renewal .....	23
Dinette Conversions .....	9	Interior .....	24
Pull-out Lounge Conversion .....	9	<b>MAINTENANCE</b> .....	<b>25</b>
Emergency Exit Window .....	9	<b>TRAVEL CHECK LIST</b> .....	<b>26</b>
Effects of Prolonged Occupancy .....	9		
Controlling Moisture Condensation .....	9		
<b>LIQUID PETROLEUM GAS SYSTEM</b> .....	<b>10</b>		
Filling LP Gas Tanks .....	10		

# INTRODUCTION

Welcome to the recreational vehicle lifestyle and the growing family of motor home owners. We sincerely thank you for choosing our product.

Your motor home has been designed to provide you with many years of carefree, pleasant traveling and vacationing. This manual describes many features of your motor home and provides a guide to operating procedures so that you can obtain the best performance from those features. Your motor home has been designed to conform with, or exceed, the American National Standards Institute A119.2, NFPA SOW, Canadian CSA Standard Z-240 (Canadian-built or units built for Canada), and applicable motor vehicle standards. These standards establish the plumbing, heating, electrical and other requirements for quality and safety. Compliance with these standards is indicated by the seal attached just outside the entry door. This seal is the outward sign of internal quality.

Like all finely crafted equipment, your motor home will require care and regular maintenance in order to retain its maximum performance characteristics. This manual, along with the information provided in your Owner's Information Kit and Chassis Operator's Manual outlines important areas of maintenance and provides a maintenance schedule that you should follow to ensure safe, trouble-free service from your motor home. Study these instructions carefully. A good working knowledge of your motor home and how to care for it will help you enjoy many miles and years of recreational living.

The motor home has been thoroughly inspected before shipment. It is the duty of your dealer to inspect the motor home and to prepare it for you during the pre-delivery phase of the sale.

**YOUR DEALER IS RESPONSIBLE FOR PERFORMING A COMPLETE PREDELIVERY INSPECTION OF THE CHASSIS AND ALL MOTOR HOME COMPONENTS AS SPECIFIED IN THE PREDELIVERY CHECKLISTS.**

**YOU SHOULD RECEIVE A COPY OF THESE COMPLETED CHECKLISTS FROM YOUR DEALER WHEN YOUR MOTOR HOME IS DELIVERED TO YOU.**

He will instruct you in its basic use; however, supplement this instruction by reading all instructional material furnished with the motor home. If, after taking delivery of your new motor home, you feel it requires additional conditioning or adjustment, please return it to your dealer as soon as possible.

If you have any questions regarding operation, maintenance, or service, please contact your dealer immediately so he can assist you. Your dealer's Service or Sales Department will handle any normal problem which might occur. Customer service is of

utmost importance to your dealer, and is just as important to the manufacturer. Your motor home is covered by one of the most comprehensive warranty programs in the industry. Please read carefully. You will be better Informed in case you have a warranty related problem, and your dealer will be better able to get you on the road again. If, for some reason, a problem is not handled to your satisfaction:

1. Discuss any warranty-related problems directly with the manager or owner of the dealership, giving him an opportunity to help his service department resolve the matter for you.
2. If a problem arises that cannot be resolved to your satisfaction by your local dealer, contact the factory service manager.
3. We sincerely believe that your dealer and the factory representative will be able to solve any problem which might arise. If their combined efforts are not satisfactory, please send a letter describing the circumstances to:



**Leisure Odyssey, Inc.**

2362 SOUTH GARDENA AVENUE  
SAN BERNARDINO, CA 92408  
(714) 796-8331

4. If you wish to call for assistance, please use these telephone numbers.

From California: (714) 796-8331  
Outside California: 1-800-826-9943

Please include the serial number of your motorhome, Dealer end Purchase date. Thank you for choosing our product. Your dealer and we, the manufacturer, will continually strive to merit your confidence.

**NOTE:** Some equipment and features described or shown in this manual may be optional on some models. This instructional manual is of general nature only.

**NOTE:** This product is designed for recreational use and short term occupancy only. It is not designed or intended to be used as permanent housing. Use of this product for long term or permanent occupancy may lead to premature deterioration of interior finishes, fabrics, carpeting, and drapes. Damage or deterioration due to long-term occupancy may not be considered normal, and may under the terms of the warranty, constitute misuse, abuse, or neglect, and may therefore reduce your warranty protection.

## **FRONT END ALIGNMENT**

**AS A PART OF THE PREDELIVERY INSPECTION PROCEDURE, THE DEALER IS TO ROAD TEST THE MOTOR HOME. NOTING AND CORRECTING ANY STEERING PROBLEMS BEFORE DELIVERY TO THE RETAIL CUSTOMER.**

# PLANNING AND PREPARATION

The camping trip is one of the most popular types of vacations, and each year millions of Americans embark on camping trips using some type of recreational vehicle. Proper planning of your trip, including familiarity with your equipment, your itinerary, anticipated activities, and anticipated needs will ensure a pleasurable experience. That is what this manual is all about. The ideas and instructions presented here are intended to help you get the most from your new RV, and enjoy your trip.

## **READ THE BOOK**

A thorough knowledge of your RV is important if you are going to get the most out of the convenience and safety items built into your vehicle. Be as familiar with it as you are with your personal car or truck. Study all the booklets included in your Owner's Information Kit. These booklets cover details of operation for the major appliances and equipment built into your motor home for your comfort, convenience and safety.

## **INSPECT AND MAINTAIN**

Follow a consistent schedule of inspection and maintenance for your motor home. Your continuing safety and comfort depend on it. Pay particular attention to brakes, tires, suspension and exhaust system components, steering linkages, and electrical systems. This manual includes a section outlining motor home maintenance items and recommended maintenance

intervals. Adherence to these schedules will minimize the possibility of failure of any important system or part of your motor home. The time spent inspecting and maintaining your motor will provide you with many years of recreational pleasure.

## **LOADING AND WEIGHT DISTRIBUTION**

Proper loading is one of the most important considerations when traveling in a motor home. Your motor home is built to withstand a certain maximum load. Check the labels and tags attached to the motor home to determine the safe load limits. For safety's sake, NEVER OVERLOAD THE MOTOR HOME. This manual contains information about proper loading and weighing of your motor home.

## **CONTROL OF THE MOTOR HOME**

Know how to control your motor home on the highway. Be familiar with passing and stopping requirements, and problems that can develop. Know how to brake properly, how to back up, and how to turn. Practice in a secluded place until you become familiar with the handling characteristics and techniques of your motor home. Don't overlook the laws of your state or province that govern driving a motor home. Your state Motor Vehicle Department office can provide you with the applicable vehicle codes that spell out your rights and responsibilities as a motor home owner.

# READY TO LEAVE

BE SURE TO PLACE THE ENTRY STEP IN TRAVEL POSITION.

## **STARTING AND WARMUP**

Follow the recommendations in your Chassis Operator's Manual when starting or operating your engine.

**NOTE:** Be sure transmission is in "P" park and parking brake is engaged to keep the motor home from rolling. If the parking brake needs adjustment, see the Chassis Operator's Manual for adjustment instructions.

## **SAFETY BELTS**

Seat belts are an important safety feature of your vehicle. For your protection, fasten all belts while the motor home is in motion. The driver's seat and all other seats designed to carry passengers while under way have been equipped with lap belts.

**NOTE:** All riders should be furnished with and use seat belts while the vehicle is in motion. Seats which are not equipped with safety belts should not be occupied while the vehicle is in motion and will be labeled: "NOT FOR USE WHILE THE VEHICLE IS IN MOTION". It is not possible to belt in persons using beds.

**WARNING: WHILE THE MOTOR HOME IS IN MOTION, FASTEN SEAT BELTS AND DO NOT ALLOW PASSENGERS TO OCCUPY ANY SEAT OR BED THAT IS NOT EQUIPPED WITH A SEAT BELT.**

Adjust seat belts as follows:

- Pivot buckle at right angles to the belt and pull to the desired length.
- To fasten belt, be sure it is not twisted, then push the tongue end of one belt into the buckle of the mating belt. Be sure it latches. Pull the loose end of the belt to tighten.
- To release the belt, depress the button in the center of the buckle and slide the tongue out of the buckle.

Adjust the belt as low on the abdomen and as snug as comfort will allow, for greatest safety. Never use a belt for more than one person at a time. If your belts have been equipped with retractors, be sure belt is pulled all the way out of the retractor.

# MOTOR HOME LOADING

A motor home chassis (springs, wheels, tires, axles, and frame) is designed to carry a certain maximum load. This load consists of the weight of the empty motor, home itself, plus anything else that may be stored in or attached to the motor home. The maximum load for which the motor home is designed is called the GROSS VEHICLE WEIGHT RATING (GVWR).

## **DETERMINING AND DISTRIBUTING YOUR MOTOR HOME LOAD**

The Gross Vehicle Weight Rating for your motor home is shown on the certification tag posted on the driver's doorjamb, or sidewall at the driver's window or door. These ratings are for a fully loaded vehicle including passengers and normal belongings. You must compare the GVWR to the loaded weight of your motor home. If the loaded weight of your motor home exceeds the GVWR, the motor home is overloaded and you'll have to remove items to bring the weight down to or below the GVWR.

Follow the method outlined here to determine the weight of your motor home. Use a platform scale, and keep the motor home as level as possible during all measurements.

1. Drive the entire vehicle (both axles) onto the scale and take a reading. This is the Gross Vehicle Weight.
2. Compare reading 2 with the GVWR (Gross Vehicle Weight Rating) of your vehicle. If the reading exceeds the GVWR rating, you will have to reduce the total vehicle load.

**WARNING: EXCEEDING THE LABELED GVWR OF YOUR MOTOR HOME CAN CAUSE UNDESIRABLE HANDLING CHARACTERISTICS AND MAY CREATE A SAFETY HAZARD. MODIFICATION OF YOUR VEHICLE BY ADDITION OF RACKS NOT SPECIFIED BY THE MANUFACTURER TO CARRY ADDITIONAL EQUIPMENT OR VEHICLES IS NOT RECOMMENDED. MAY CREATE A SAFETY HAZARD, AND MAY VOID YOUR WARRANTY**

## **LOADING TIPS**

After you have determined how much weight you can safely carry and selected those items to make up that weight, make a list and keep it for future reference. Load the motor home and distribute the load so that you get proper weight on the axles. Don't load heavy items in upper cabinets. Secure and brace items so they won't move during travel, thereby shifting motor home load. Do not load heavy items near either end of the motor home or on the rear bumper.

**WARNING: DO NOT INSTALL ANY TYPE OF WEIGHT CARRYING RACK OR FRAME TO THE REAR BUMPER OR ANY CHASSIS OR BODY COMPONENT OF THE MOTOR HOME. DAMAGE TO THE MOTOR HOME BODY AND UNSTABLE HANDLING CHARACTERISTICS MAY RESULT.**

Make a loading diagram of your properly loaded motor home. It will help you locate where specific items are stored, and will help speed the loading process. Store emergency items in a readily accessible location. Include a fire extinguisher tools, jack, first-aid kit, rain gear, flashlight, highway warning devices, and an electric cord with light.

**WARNING: DO NOT STORE OR CARRY LP GAS CONTAINERS, GASOLINE, OR OTHER FLAMMABLE LIQUIDS INSIDE YOUR MOTOR HOME.**

Periodically reweigh your motor home. Different traveling configurations may change your loading and weight pattern.

NOTE: Every motor home is provided with an approved dry chemical fire extinguisher. It is UL rated 10—BC. Instructions for its use are printed plainly on the fire extinguisher itself, as well as in the owner's manual which accompanies it. Please read carefully and understand these instructions before starting on a trip.

# ON THE ROAD

## **DRIVING AND PARKING**

Once you become accustomed to the feel of the controls and the reference points from the driver's seat, you will find driving the motor home comparable to driving your family car. Become familiar with the position of the motor home in traffic, and be cautious when maneuvering to allow for the length and width of the vehicle. Always allow extra room to corner and to change lanes. Learn to use the side mirrors to view the road behind. Check them often.

Drive with consideration on the highway, observing all speed and safety regulations. The best cruising speed of your motor home will vary with road and weather conditions. -

Remember that your motor home is heavier than a car, making it less maneuverable and harder to stop. Also, because of its greater side surface area, it is more easily affected by, cross winds. Allow extra distances for passing and stopping, and drive at a moderate speed, particularly in traffic and in gusty wind conditions.

Driving on winding or mountain roads is not difficult if done with reasonable care. Observe proper vehicle speeds when ascending or descending hills and always operate in the proper transmission range. Downshift on hills to avoid overheating or undue engine loads. Downshift when descending grades. Engine braking power will help control vehicle speed, and relieve some of the strain on the brakes.

Road conditions, terrain, weather, and other driving factors are sometimes unpredictable, and mountain driving or desert temperatures can put extreme demands on drivetrain components — especially the transmission. Under extreme heat conditions you may need to turn off the vehicle air conditioner to improve engine and transmission cooling.

Allow for the extra height of your motor home and avoid areas having low, overhead clearance. Check for low-hanging tree branches or other obstructions whenever you drive or park. Avoid low roofs when pulling in for service. This may be particularly important if you drive with the overhead vents open or if the motor home is equipped with a roof air conditioner, roof rack, CB or TV/radio antenna.

When parking parallel to a curb, be sure to allow for poles or obstructions as the front and rear portions of the motor home swing wider than an automobile. When parking on an incline, turn the front wheels into the curb in the direction of the roll to aid the parking brake. Always shift the transmission to PARK ("P") and set the parking brake when parking.

## **MISCELLANEOUS SAFETY TIPS**

- Read and understand the Chassis Operator's Manual.

- When backing the motor home, have a person stand to the rear on the driver's side, if possible to guide you.
- Before departing on a trip, check your routes. Remember, some tunnels prohibit motor homes with LP gas systems.
- Drive at moderate speeds, particularly in traffic and in gusty wind conditions.
- Allow extra distance for passing and stopping.
- While traveling, make sure all occupants use their seat belts.
- While traveling, make sure all doors are closed and that cabinets, drawers, and loose objects are Secure.
- Instruct your family on what to do in case of fire, and hold fire drills periodically.
- Maintain proper charge in the fire extinguisher.
- Gas detectors are available from RV equipment dealers and may be considered as safety accessories.
- Keep a well-stocked first aid kit handy.
- Keep a toolbox handy.
- Check tires often while traveling. Inside rear duals should receive special attention, as these tires may go flat and not be noticed. Running a flat on an inside dual could lead to a tire fire that would be extremely difficult to extinguish. Make it a habit to check tire pressures before each trip, and when refueling give each tire a sharp rap on the tread surface with a piece of pipe or similar object. Properly inflated tires produce a 'bung' sound when rapped. If the tire is flat, the sound will be a dull 'thud'.

## **CARBON MONOXIDE SAFETY PRECAUTIONS**

**WARNING: EXHAUST GASES ARE DEADLY. DO NOT BLOCK THE TAILPIPES OR SITUATE THE VEHICLE IN A PLACE WHERE THE EXHAUST GASES HAVE ANY POSSIBILITY OF ACCUMULATING EITHER OUTSIDE, UNDERNEATH, OR INSIDE YOUR VEHICLE OR ANY NEARBY VEHICLES. OUTSIDE AIR MOVEMENTS CAN CARRY EXHAUST GASES INSIDE THE VEHICLE THROUGH WINDOWS OR OTHER OPENINGS REMOTE FROM THE EXHAUST OUTLET OPERATE THE ENGINE ONLY WHEN SAFE DISPERSION OF EXHAUST GASES CAN BE ASSURED, AND MONITOR OUTSIDE CONDITIONS TO BE SURE THAT EXHAUST CONTINUES TO BE DISPERSED SAFELY.**

- Beware of exhaust gas (carbon monoxide) poisoning Symptoms:  
Dizziness  
Intense Headache  
Weakness and Sleepiness  
Vomiting  
Muscular Twitching  
Throbbing in Temples  
If symptoms indicate the possibility of carbon monoxide poisoning, turn off the engine immediately, open all windows, get out into fresh air at once, and summon medical assistance.

**WARNING: DO NOT UNDER ANY CIRCUMSTANCES OPERATE THE ENGINE(S) WHILE SLEEPING.**

- You would not be able to monitor outside conditions to assure that engine exhaust does not enter the interior, and you would not be alert to exhaust odors or symptoms of carbon monoxide poisoning.
- Check the exhaust system during routine maintenance, and repair any leaks or obstructions before further operations.
- Do not modify the exhaust system in any way without first consulting the RV manufacturer.

**OVERHEATING**

The engine and cooling system in your vehicle should be operated and serviced as recommended in your Chassis Operator’s Manual.

**VARIABLE SPEED ENGINE FAN**

The motor home chassis is equipped with a variable speed fan clutch. When the engine is under load or requires maximum cooling, the fan automatically adjusts and turns faster. The fan requires a lot of horsepower, and becomes very noisy at high speed. Maximum cooling is required only a small percentage of the time. When the engine doesn’t need maximum cooling, the fan just idles along. This conserves fuel and the fan is less noisy.

High speed fan noise can sometimes be misinterpreted as transmission slippage. This is not the case. When the engine is hot and requires extra cooling, the fan turns at full speed. High engine speed and temperature conditions, such as pulling away from a stop after long freeway driving, can cause loud fan noise until the engine cools down. The fan noise is good noise. The fan is doing what it is supposed to do. This noise is not a defect in the fan or the transmission.

**12-VOLT FUSE REPLACEMENTS**

If part of your vehicle electrical system should fail while on the road, check the fuses located under the hood on the driver’s side. The fuse block is labeled with circuit functions and fuse values. The fuses are automotive type, and are available at most service stations and parts

distributors. Refer to the ELECTRICAL section for information on living area 12-volt fuses and circuit breakers.

**TIRES**

Your motor home is equipped with truck tires. Under normal circumstances and with proper maintenance, you should receive thousands of miles of trouble-free service.

For safety, motor home stability, and maximum tire life, proper inflation pressure must be maintained. The load range and maximum inflation pressure are stamped on the tire sidewall.

**WARNING: CHECK TIRE PRESSURES OFTEN. ALWAYS CHECK PRESSURE WHEN TIRES ARE COLD, AND DO NOT BLEED AIR OUT OF WARM TIRES. FOLLOW THE TIRE PRESSURE INSTRUCTIONS IN THE CHASSIS OPERATOR’S MANUAL.**

**WARNING: KEEP TIRES PROPERLY INFLATED. A TIRE THAT IS RUN LONG DISTANCES OR AT HIGH SPEEDS WHILE SERIOUSLY UNDER INFLATED WILL OVERHEAT TO THE POINT WHERE THE TIRE MAY LOSE AIR SUDDENLY AND/OR CATCH FIRE. POSSIBLY RESULTING IN DAMAGE TO THE VEHICLE AND ITS CONTENTS AND/OR PERSONAL INJURY.**

**TIRE REPLACEMENT**

Replacement tires must be the same size and have at least the same weight carrying capacity as the original equipment tires. The original equipment tires supplied on your motor home have weight carrying capacities to support gross axle weight ratings (GAWR) as stated on the Federal Certification Tag located on the sidewall near the driver’s seat.

Refer to the Federal Certification Tag for specific axle capacities for your motor home.

**CHANGING A FLAT TIRE**  
CONSULT THE CHASSIS OPERATOR’S MANUAL FOR INFORMATION ON TIRE CHANGING.

Even with good tire maintenance and normal driving, you may experience a flat tire. The best way to solve this problem is to summon professional help through your auto club, travel service, or a local truck service facility. If none of these is available, and circumstances require you to change the tire yourself, there are several items that you MUST be aware of before you attempt to change a flat tire:

- Your motor home is built on a truck chassis. The tires and wheels can weigh up to 50 pounds or more. IF YOU ARE NOT PHYSICALLY CAPABLE OF LIFTING AND MOVING 50 POUNDS OR MORE, DO NOT UNDER ANY CIRCUMSTANCES TO ATTEMPT TO CHANGE A FLAT TIRE.



- Truck tires and wheels are installed with the wheel nuts tightened very tightly. IF YOU ARE NOT PHYSICALLY CAPABLE OF BREAKING LOOSE NUTS THAT HAVE BEEN TIGHTENED UP TO 180 LB/FT OF TORQUE, AND THEN RE-TIGHTEN TO THIS TORQUE. DO NOT UNDER ANY CIRCUMSTANCES ATTEMPT TO CHANGE A FLAT TIRE.

- The motor home itself with all of your travel gear is extremely heavy, weighing up to three tons. The axle jack furnished with your motor home is Capable of lifting the weight on one wheel, or about one-fourth of the total gross weight of the vehicle. The ground or road surface under the vehicle may not support the weight of the vehicle on the small surface area of the jack. A strong board or other flat surface may be necessary under the jack to spread the load and stabilize the jack.

**WARNING: TO AVOID PERSONAL INJURY AND/OR PROPERTY DAMAGE IF A BLOWOUT OR OTHER TIRE DAMAGE OCCURS, TRY TO OBTAIN EXPERT TIRE SERVICE HELP. IF YOU MUST REMOVE ANY WHEELS AND CHANGE THE TIRE WITHOUT PROFESSIONAL HELP, TAKE OFF THE TIRE AND RIM ASSEMBLY AND PUT ON THE SPARE TIRE AND RIM ASSEMBLY FOLLOWING THE INSTRUCTIONS IN THE CHASSIS OPERATIONS MANUAL. DO NOT REINFLATE A TIRE THAT HAS BEEN FLAT, OR IS SERIOUSLY LOW ON AIR. HAVE THE TIRE REMOVED FROM THE WHEEL AND CHECK THE TIRE AND TUBE FOR DAMAGE. NEVER ADD AIR TO TIRES UNLESS AN ACCURATE PRESSURE GAUGE IS USED.**

**REQUIRED TOOLS AND EQUIPMENT**

- JACK

**WARNING: THE JACK IS DESIGNED FOR USE AS A TOOL FOR TIRE CHANGING ONLY. IT IS NOT INTENDED FOR USE AS A LEVELING DEVICE OR AS A LIFT FOR SERVICE PURPOSES.**

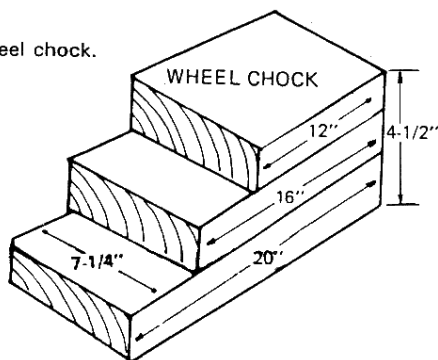
Lug wrench to fit wheel nuts, with breaker bar handle.

Torque wrench with at least 300 LB/FT. capacity.

Wheel blocks

Board or other flat surface to place under the jack.

Wheel chock.

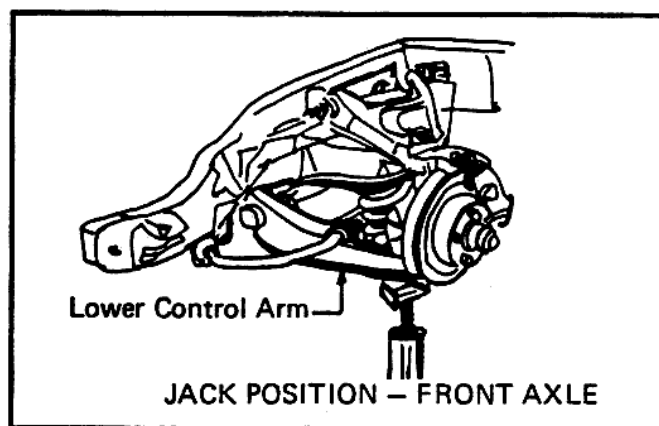


**WARNING: DO NOT CRAWL UNDER VEHICLE.**

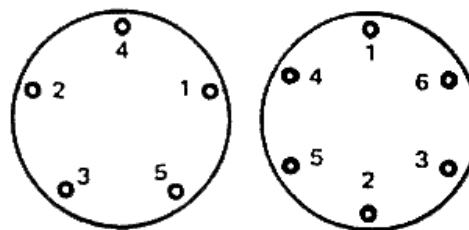
CONSULT THE CHASSIS OPERATOR'S MANUAL FOR INFORMATION ON TIRE CHANGING.

**TO CHANGE A FRONT WHEEL:**

1. Move the vehicle to a level, firm surface.
2. To provide clearance for the jack, carefully drive the flat tire up on the wheel chock.
3. Turn off the engine, place transmission selector in "P" and set the parking brake.
4. Block both the front and back of the wheel in the opposite corner from the wheel to be changed.
5. On Questionable surfaces, use a board or other solid, flat material under the jack to provide a firm base and minimize the possibility of shifting.
6. Slide the jack under the front spring lower control arm (see illustration), and turn the screw extension up until it touches the control arm surface.



7. Begin jacking until the jack is firmly positioned, but do not lift the tire off the ground.
8. Loosen but do not remove the wheel nuts.
9. Raise the vehicle until the tire clears the ground.
10. Remove wheel nuts and wheels. Put spare wheel in place.
11. Replace wheel nuts. Carefully tighten the nuts snugly with the wheel and tire off the ground.
12. Lower the vehicle until the tire contacts the ground. Do not put the full weight of the vehicle on the tire.
13. Tighten the wheel nuts following the sequence shown in the diagram, to the specified torque.



WHEEL NUT TIGHTENING SEQUENCES

14. Completely lower and remove the jack. Remove blocks, boards and other tools.
15. Drive the vehicle off the chock.
16. Check the tightness of the wheel nuts often until you get to a tire service center. Have the wheel nut torque and air pressure checked by professional tire service personnel.

### **TO CHANGE A REAR WHEEL:**

(If only one tire is flat on a rear dual, drive 25 mph or less for no more than 5 miles to a tire service center, checking the tire often.)

1. Move the vehicle to a level, firm surface.
2. Turn off the engine, place the transmission selector to 'P' and set the parking brake.
3. Block the front and back wheel in the opposite corner from the wheel to be changed. -
4. On questionable surfaces, use a board or other solid, flat material under the jack to provide a firm base and minimize shifting.
5. Slide the jack under the rear axle housing and screw the extension out until it touches the axle housing tube. Be sure the jack is centered on the axle tube so the vehicle will not slide off the jack. Place the jack far enough inboard on the axle so the jack can be operated without getting under the vehicle.
6. Begin jacking until the jack is firmly positioned but do not lift the tire off the ground.
7. Loosen, but do not remove the wheel nuts.
8. Raise the vehicle until the tire clears the ground.
9. Remove wheel nuts and wheel. Remember, with dual wheels, both wheels will be loose. Remove and replace wheels and nuts carefully.
10. Put spare wheel in place. Replace outside dual, if necessary. The dual wheels MUST line up properly. If the wheels are not aligned, they will wobble enough to cause damage to tires and bearings.
11. Replace wheel nuts. Carefully tighten the nuts snugly in sequence shown in the diagram.
12. Apply the specified torque to all nuts in sequence. Dual wheels must be tightened with both wheels off the ground.
13. Lower the jack. Remove jack, blocks, boards and other tools and equipment.
14. Check the tightness of the wheel nuts often until you get to a tire service center. Have the wheel nut torque and air pressure checked by professional tire service personnel.

### **TOWING**

If your motor home ever needs to be towed, please follow these instructions:

- Secure any loose or protruding parts of damaged vehicle.
- Inspect points of attachment to the disabled vehicle. If attachment points are damaged or deteriorated, select other attachment points at a substantial frame structural member.
- Never allow anyone to go under a vehicle while it is being lifted by towing equipment unless the disabled vehicle is adequately supported by safety stands.

Do not tow the motor home from the rear. Towing from the rear will cause the front tires and suspension to be seriously overloaded, possibly resulting in tire or front suspension failure. The rear frame extensions are not designed to withstand the loads imposed by lifting from the rear.

If the rear wheels are disabled, place the motor home on a flat bed trailer, or use a heavy duty dolly under the rear wheels and tow from the front.

**NOTE: IF YOUR MOTOR HOME MUST BE TOWED. PREVENT DAMAGE BY HAVING THE TOW TRUCK DRIVER FOLLOW THE INSTRUCTIONS IN THE CHASSIS OWNER'S MANUAL.**

### **LIFTING PROCEDURE**

1. Attach "J" hooks to the inboard ends of the lower control arms.
2. Position a 4 x 4 length of wood across hitch chains just behind the bumper.
3. Position the lower sling crossbar directly under the bumper.
4. Attach safety chains which are completely independent of the primary lifting and towing attachment around the frame side rails.
5. Lift the vehicle until the wheels are a minimum of 4" off the ground. Be sure there is adequate ground clearance at the rear of the vehicle.

The vehicle may be towed on the rear wheels with the parking brake released and the transmission in neutral provided a speed of 30 mph and a distance of 50 miles is not exceeded. If this speed or distance must be exceeded, disconnect the propshaft or place the rear wheels on a dolly. **DO NOT TOW ANY VEHICLE AT SPEEDS OVER 50 MPH.**

The safety of the operator and all others in the vicinity of the tow truck and the towed vehicle must be considered at all times during a towing operation. **DO NOT ALLOW ANY PERSON TO RIDE IN THE TOWED VEHICLE.** Safe operating speeds depend on weather, road, traffic, visibility conditions, and the condition of the towed vehicle. Avoid panic stops. Obey all state and local laws regarding items such as warning signals, night illumination, speed, etc.

# SERVICE

## **MOTOR HOME CHASSIS OPERATOR'S MANUAL**

Refer to your Chassis Operators Manual For information on chassis service recommendations.

Have the coolant, the battery electrolyte, and the engine oil levels checked each time when refueling.

NOTE: Proper engine servicing and record of servicing may be mandatory to ensure chassis warranty protection. Follow the manufacturer's instructions on periodic maintenance checks.

## **SERVICE PARTS AND REPLACEMENT**

### **Filter Replacement Recommendations**

Replacement part numbers listed in this section are based on the latest information available at the time of printing, and are subject to change. If a part listed in this manual is not the same as the part used in your vehicle when it was built, or if you have any questions, please contact your dealer or parts supplier. *Be sure the part you use is equivalent to the one replaced.*

## **BATTERY SERVICE**

### **Main Vehicle Battery**

Your motor home has a 12-volt automotive battery located under the front hood. This battery provides power for all vehicle requirements. Have this battery serviced when fueling or servicing other vehicle Systems.

### **Auxiliary Battery**

There is one 12-volt battery to provide living-area power requirements. Have the battery serviced when fueling or servicing other vehicle systems.

When operating properly, the vehicle alternator will be able to handle normal vehicle driving requirements and also recharge the battery(s) in a reasonable time when on the road.

## **GENERATOR POWER PLANT SYSTEM SERVICE**

Generator power plant service, recommended by the generator manufacturer, should be performed at an authorized service center (listed in the materials provided in your Owner's Information Kit). Routine or emergency service, such as adding oil, changing filter or replacing spark plugs, could be accomplished at an auto service center, but must be done accordance with the service instructions specified by the generator manufacturer.

## **AUTOMOTIVE AIR CONDITIONER**

For specific instructions, refer to the information provided by the air conditioner manufacturer.

**CAUTION: THE AUTOMOTIVE AIR CONDITIONER PLACES AN ADDITIONAL LOAD ON THE VEHICLE'S COOLING SYSTEM. IF ENGINE RUNS ABNORMALLY HOT, SHUT OFF AIR CONDITIONER UNTIL ENGINE COOLS DOWN.**

# INTERIOR AND FURNISHINGS

The materials used inside your motor home have been selected for durability and comfort. With reasonable care, these materials will stand up under years of recreational living. The MAINTENANCE SECTION in this manual outlines care requirements for the various upholstery fabrics, floor, cabinet, and wall finishes.

## STORAGE

Storage facilities in your motor home have been designed to remain secure while the vehicle is in motion. Exterior compartments have key-operated locks. (The LP gas compartment is required by fire-prevention regulations to be unlocked at all times.) Drawers rest in small notches or detents when closed; to open, lift slightly to clear the detent, then pull open. When storing articles:

- Always keep tools and equipment stored in areas where they will not shift while traveling.
- Whenever possible, place heavy articles in storage compartments which are low and near the axles for better weight distribution.
- Pack articles carefully in the storage compartments to minimize shifting. If necessary, use straps to prevent movement.
- Be sure liquid containers are capped and cannot tip or spill. Secure all glass containers and dishes before traveling.
- Secure all free standing furniture.
- Exterior storage compartments may not be watertight in all climate conditions. Carry any articles which could be damaged by water inside the motor home.

**WARNING: OUTSIDE STORAGE COMPARTMENTS ARE NOT SEALED. VENTED ENCLOSURES. AND ARE ACCESSIBLE FROM INSIDE THE MOTOR HOME. DO NOT STORE FLAMMABLE. VOLATILE LIQUIDS, HAZARDOUS CHEMICALS OR EQUIPMENT IN THESE AREAS.**

## EFFECTS OF PROLONGED OCCUPANCY

Your motor home was designed primarily for recreational use and short term occupancy. If you expect to occupy the motor home for an extended period, be prepared to deal with condensation and the humid conditions that may be encountered. The relatively small volume, thin walls, and tight construction of a modern recreational vehicle mean that the normal living activities of even a few occupants will lead to rapid saturation of the air contained in the motor home and the appearance of visible moisture, especially in cold weather. If you know the signs of excessive moisture and condensation, you can minimize their effects.

The air inside a recreational vehicle can contain a surprisingly large amount of water vapor. Estimates indicate that a family of four can vaporize up to three gallons of water daily through breathing, cooking, bathing, and washing. Unless this water vapor is carried outside by ventilation, or condensed by a dehumidifier, it will condense on the inside of the windows and walls as moisture, or in cold weather as frost or ice. It may also condense out of sight within the walls or the ceiling where it will manifest itself as stained panels. Appearance of these conditions indicates a condensation problem.

## CONTROLLING MOISTURE CONDENSATION

You can reduce or eliminate interior moisture condensation during cold weather by taking the following steps:

- **Ventilate with outside air.**  
Partially open one or more roof vents and one or more windows to provide controlled circulation of outside air into the interior. While this ventilation will increase furnace heating load, it will greatly reduce, or eliminate, water condensation.

Note: Even when it is raining or snowing, ventilation air from outside will be far drier than interior air and will effectively reduce condensation.

- **Reduce moisture released inside the motor home.**  
Run the range vent fan when cooking and the bath vent fan jar open the bath vent) when bathing to carry water vapor out of the motor home. Avoid making steam from excessive boiling or use of hot water. Remove water or snow from shoes before entering to avoid soaking the carpet. Avoid drying overcoats or other clothes inside the motor home. **WARNING: DO NOT HEAT THE MOTOR HOME INTERIOR WITH THE RANGE OR OVEN.** In addition to the hazards of toxic fumes and oxygen depletion which make heating by the range or oven very dangerous, open flames add moisture into the interior air, increasing condensation.

- **Ventilate closets and cabinets.**  
During prolonged use in very cold weather, leave cabinet and closet doors partially open to warm and ventilate the interiors of storage compartments built against exterior walls. The air flow will warm the exterior wall surface, reducing or eliminating condensation and Preventing possible Ice formation -

# LIQUID PETROLEUM GAS SYSTEM

Liquid petroleum (LP) gas is provided from storage tanks to operate your range, oven, furnace, water heater, and as an alternate energy source for the refrigerator. LP gas is a colorless gas which has been treated to have an odor similar to garlic to permit detection if a leak occurs. With proper handling precautions, it is safe and provides modern conveniences wherever you travel. LP gas is stored in a special tank mounted on the motor home chassis. It is stored as a liquid under pressure and vaporizes under the control of a pressure regulator.

**WARNING: LP GAS IS FLAMMABLE AND POTENTIALLY EXPLOSIVE. USE PROPER HANDLING, LIGHTING, AND VENTILATING PROCEDURES.**

## **FILLING LP GAS TANKS**

To fill the chassis-mounted storage tank, drive the vehicle to an LP gas supplier or one of the service stations which sell LP gas.

**WARNING: TURN OFF LP GAS MAIN VALVE BEFORE FILLING LP GAS TANKS OR ENTERING AN LP GAS BULK PLANT OR MOTOR FUEL SERVICE STATION. TURN OFF ALL PILOT LIGHTS AND APPLIANCES INDIVIDUALLY BEFORE REFUELING OF MOTOR FUEL TANKS AND/OR PERMANENTLY MOUNTED LP-GAS CONTAINERS. WHEN NOT INDIVIDUALLY TURNED OFF, AUTOMATIC IGNITION APPLIANCES MAY CONTINUE TO SPARK WHEN LP GAS IS TURNED OFF AT THE CONTAINER. DO NOT FILL LP GAS CONTAINERS TO MORE THAN 80% OF CAPACITY.**

## **LP GAS REGULATOR**

The regulator reduces the high pressure of the gas from the tank to a low, even pressure to service the appliances in the motor home. The regulator is protected from freezing road spray and other foreign matter by a water-resistant cover. **WARNING: DO NOT ATTEMPT TO ADJUST THE REGULATOR. IT HAS BEEN PRESET BY THE MANUFACTURER OF THE REGULATOR. IF ANY ADJUSTMENT IS REQUIRED, IT MUST BE MADE BY A QUALIFIED LPG SERVICE TECHNICIAN USING SPECIAL EQUIPMENT.**

## **USING LP GAS SYSTEM AT LOW TEMPERATURES**

Your gas system will function at low temperatures, provided the system components are kept at a temperature above the boiling point of the gas. NOTE: Butane vaporizes at about 32°F and propane vaporizes at about -40°F. Choose a type of LP gas which has a boiling point lower than any temperature you expect to encounter. Ask your LP gas supplier or

your motor home dealer for information on products available in your area.

If, despite precaution, the gas flow to your appliances should fail at low temperatures, ice may have built up in the regulator. Try melting the ice by warming the regulator using a small light bulb. **DO NOT USE AN OPEN FLAME.** Once flow is restored, make certain that the regulator cover is properly installed to prevent water from entering the regulator which will cause it to freeze again. If the problem persists, ask your LP gas supplier to service the tank or regulator, removing the moisture or adding an ice-inhibitor as required.

## **LP GAS SYSTEM LEAK CHECKS**

For your safety, check for leaks in your gas system each time the tank is filled or before each trip. Always check the system any time the odor of garlic is detected. To perform a leak check, open the tank valve and spread a non-ammoniated, non-chlorinated soap solution or an approved leak detection solution only over all connections. Escaping gas will create bubbles showing the location of the leak.

**WARNING: NEVER CHECK FOR LEAKS WITH AN OPEN FLAME. DO NOT CHECK COPPER PLUMBING LINES FOR LEAKS USING AMMONIATED HOUSEHOLD TYPE DETERGENTS. THESE CAN CAUSE CRACKS TO FORM ON THE LINE AND BRASS FITTINGS. IF THE LEAK CANNOT BE LOCATED, TAKE THE UNIT TO AN LP GAS SERVICE REPRESENTATIVE.**

Keep the tank valve closed and turn off all appliances if the unit is not being used. **WARNING: DO NOT USE PLIERS OR A WRENCH TO TIGHTEN VALVES. IF A VALVE IS NOT LEAK-TIGHT WHEN CLOSED BY HAND, SEE A LP GAS SERVICE REPRESENTATIVE.**

## **LIGHTING LP GAS APPLIANCES**

Detailed operating information can be found in your Owners Information Kit. Please read and follow these instructions.

Air trapped in the gas lines may delay the initial lighting of any appliance. To purge some of the air from the gas system, light a burner on the range. The other appliances will then light more quickly.

**ALWAYS FOLLOW THE APPLIANCE MANUFACTURERS LIGHTING INSTRUCTIONS.**

## **LP GAS SAFETY PRECAUTIONS**

**WARNING: LP GAS IS FLAMMABLE AND POTENTIALLY EXPLOSIVE. USE PROPER HANDLING, LIGHTING, AND VENTILATION PROCEDURES.**

The distinctive odor of LP gas indicates a leak.

### 1. IF YOU SMELL GAS:

- Extinguish all open flames, pilot lights and all smoking materials.
- Do not touch electrical switches.
- Shut off the gas supply at the tank valve(s) or gas supply connection.
- Open all doors windows, and vents.
- Leave the area until the odor clears.
- Have the gas system- checked and the cause of the leak corrected before using the system again. -

2. Inspect the entire LP gas system for leaks or damaged parts before each trip.

3. Always be careful when drilling holes or fastening objects to the motor home. A gas line could be punctured by a nail or screw.

4. Do not restrict access to LP tanks. In an emergency, the tank service valve must be easily accessible.

5. Do not carry or store filled or empty LP gas containers inside your motor home. LP gas containers are equipped with safety devices that relieve excessive pressure by discharging gas to the atmosphere, and leaks can occur at valves and fittings.

6. Do not use any LP gas tank other than the one furnished with your motor home without being sure that all connecting components are compatible.

7. Turn off LP gas main valve and individually turn off all gas appliances before entering an LP gas bulk plant or motor fuel service station.

**8. WARNING: DO NOT FILL LP GAS CONTAINERS TO MORE THAN 80% CAPACITY. OVERFILLING CAN RESULT IN UNCONTROLLED GAS FLOW WHICH CAN CAUSE FIRE AND EXPLOSION. A PROPERLY FILLED CONTAINER HOLDS ABOUT 80% OF ITS VOLUME AS LIQUID.**

9. Never check for leaks with an open flame. Use an approved leak detection solution or a non-ammoniated, non-chlorinated soap solution only. If the leak cannot be located, take the unit to an LP gas service representative.

10. LP gas regulators must always be installed with the diaphragm vent facing downward. 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.

## **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 AND,
2. OPEN WINDOW

**WARNING: ALL PILOT LIGHTS AND APPLIANCES SHALL BE TURNED OFF DURING REFUELING OF MOTOR FUEL TANKS AND/OR LP-GAS CONTAINERS.**

# PLUMBING SYSTEMS

The plumbing systems in your motor home are constructed of thermoplastic materials. Holding tanks and piping components are strong, lightweight, and corrosion-resistant.

## **FRESH WATER SYSTEM**

Fresh water is available from either an external or "city water" hook up or on-board storage.

The external system is pressurized by the park or city water supply. When this system is used, the on-board pump and fresh water tank are isolated from the pressure in the system by a check valve. Connect the motor home to the water system as follows:

1. Remove the protective cap over the city water inlet. This inlet uses a standard garden hose fitting.
2. Connect the water hose to the city water supply line.
3. Turn the city water supply valve ON and let the water run a few seconds to clear the line.
4. Turn the supply OFF and connect the hose to the motor home inlet.
5. Turn the supply ON. Open all faucets and let the water run a few seconds to clear the lines. Close faucets,

Disconnect the city water as follows:

1. Close the city water valve.
2. Disconnect the water supply hose from the motor home inlet and replace the protective cap.
3. Fill the fresh water tank from city water supply if necessary.
4. Remove and store the hose.

The on-board fresh water system in your motor home can provide fresh water automatically whenever a faucet is opened. The system is pressurized by a 12-volt automatic self-priming pump which operates any time power is available and the pump switch is on.

The on-board water storage tank is filled through a special filler cap outside the motor home. To fill the fresh water tank open the spout and fill the tank with the hose. After filling the tank close the spout.

**WARNING: USE ONLY POTABLE DRINKING QUALITY) WATER IN THE TANK. TO INSURE CLEAR, FRESH WATER. DRAIN THE TANK AFTER USE. FLUSH AND DRAIN BEFORE EACH USE AND SANITIZE IF THE TANK IS NEW. HAS NOT BEEN USED FOR A MONTH OR MORE. OR BECOMES CONTAMINATED.**



Turn the pump on to pressurize the system. When a faucet is opened after the initial filling of the tank, the water may sputter for a few seconds. This is normal and is not cause for concern. The water flow will become steady when all air is bled from the water lines.

Avoid leaving water in the tank when it is not in use. Turn the water pump off before draining the water tank.

## **SANITIZING THE FRESH WATER SYSTEM**

Sanitize the fresh water tank and piping at least once a year, and whenever the motor home sits for a prolonged period. This will help keep the tank and lines fresh, and will discourage the growth of bacteria and other organisms that can contaminate the water supply. Use a chlorine/fresh water rinse as follows:

1. Prepare a solution of 1/4-cup household liquid chlorine bleach (5% sodium hypochlorite) to one gallon of water for each 15 gallons of tank capacity.
2. Close drain valve and faucets, pour chlorine solution into the fresh water tank filler spout, and complete filling with fresh water.

3. Open all faucets individually until water flows steadily, then turn off. This will purge any air from the lines. Be sure the water pump has power and is turned on.
4. Top off water tank with fresh water and wait three hours.
5. Drain and flush the entire system with potable water (drinking quality) by opening fresh water tank drain valve and faucets.
6. Remove any lingering chlorine taste or odor by preparing a solution of one quart vinegar and five gallons of water. Pour this solution into the fresh water tank filler spout, after closing drain valve and faucets. Complete filling with fresh water.
7. Repeat steps 3 and 4 above.
8. Drain the tank again, flush with potable water with all faucets open, then close tank valve and faucets and refill. The system is now sanitized and ready for use.

## **THE WATER PUMP**

The on-board fresh water system is pressurized by a self-priming 12-volt DC pump. The pump operates automatically when a faucet or valve is opened. When the faucet or valve is closed, the pump shuts off. A built-in check valve prevents back flow and protects the pump and fresh water tank from excessive city water system pressures up to 200 psi. The pump stroke will overcome air trapped in the lines thus preventing air lock.

The pump will not turn off automatically when the water tank is empty. Use pump switch to turn off the pump. A 10-amp fuse protects the pump circuit, and is located on the electrical distribution panel; See ELECTRICAL SYSTEM.

## **THE MONITOR PANEL**

The monitor panel allows you to conveniently check the approximate levels in the fresh water tank and the holding tanks. Electrical probes installed in the tanks measure the levels at various points in the tanks.

1. Press "WATER" or "HOLDING TANK 1 OR 2" rocker switches. Holding tank 1 is the black water tank, and holding tank 2 is gray water.
2. The "E" or empty indicator light will always be lit. If the tank is full, all lights will be on. Lights are sequential and indicate level in approximately 1/4 tank increments. If the tank selected is approximately 1/2-full, for example, lights "E", 1/4, and 1/2 will be on.

3. Erroneous indications can be caused by:
  - a. Water with low mineral content. Level is measured by a very low level electrical signal traveling through the liquid. Some water, very low in mineral content used in the fresh water tank may not conduct the signal properly. This condition may be infrequent, but can exist. Check the panel reading when the fresh water tank is filled. -.
  - b. Material trapped on the sides of the holding tanks may give a full reading when the tank is actually empty. Use of a spray to wash out the tank following dumping should help prevent this condition.

## **TROUBLESHOOTING THE FRESH WATER SYSTEM**

Water system problems usually fall into two categories: inherent system problems, and problems caused by neglect. System problems are usually the result of road vibration, and campsite water pressure variations. Problems of neglect usually stem from failure to clean filters, improper winterization and poor battery maintenance. Most water system problems can be avoided by conscientious maintenance.

### **Leaks**

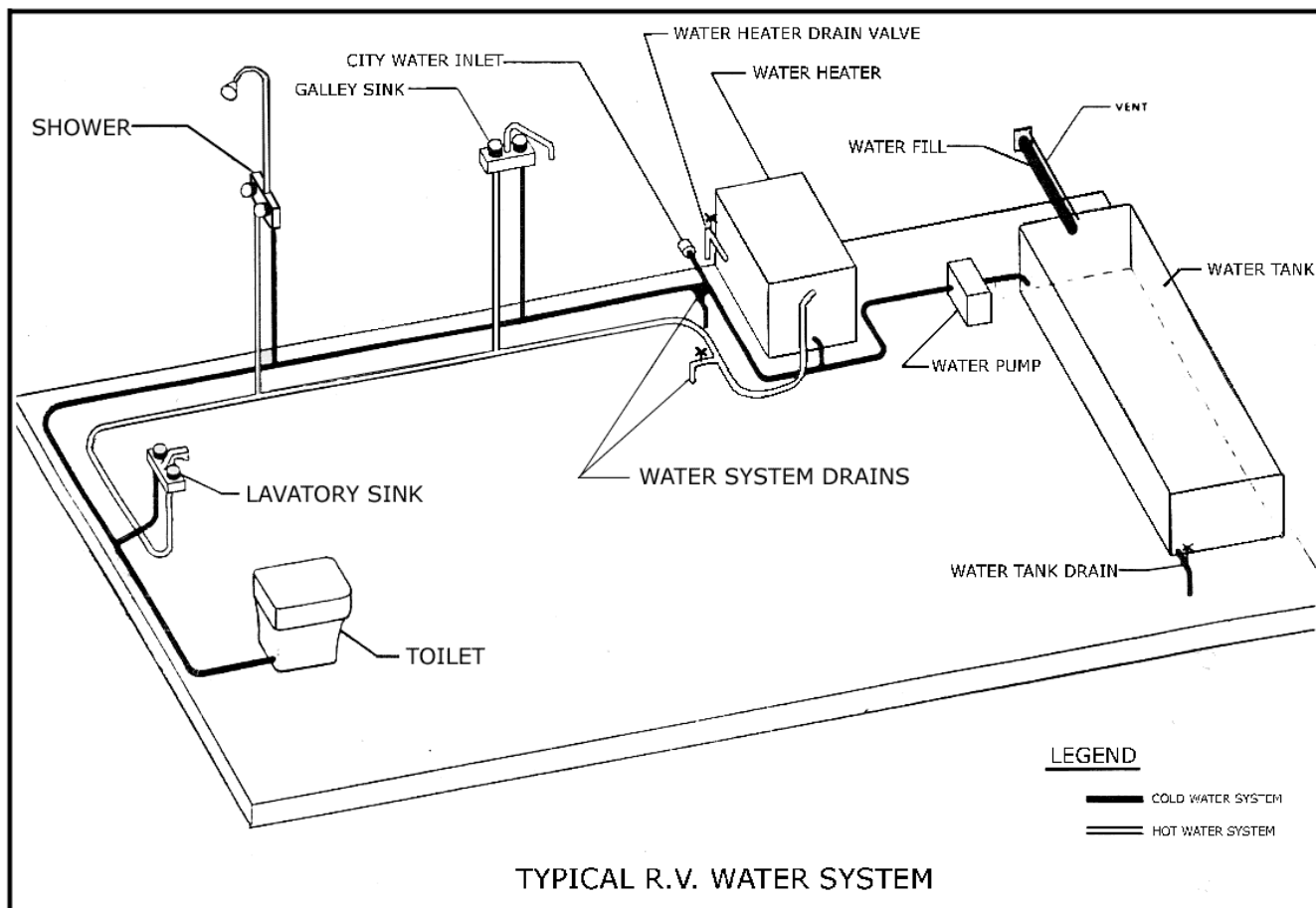
Vibration, flexing and twisting while traveling can work pipe fittings loose. Check all plumbing for leaks at least once a year. If the water pump runs when a faucet is not open, suspect a leak. Be sure the tank drain valves are tightly closed. Leaks occur most often around threaded fittings. If necessary, tighten or clean and tighten the fitting. Do not over tighten fittings. Connections at galley and lavy fixtures should not be tightened with a wrench. They will normally seal with hand tightening. If a leak persists at one of these fittings, disconnect it completely and check for mineral deposits or other foreign matter at the seating surfaces. Clean the surfaces thoroughly and reinstall the fitting.

Connections at the water tank, pump and valves are made with special clamps. If these need replacing, your RV supply dealer should be able to get them for you.

Leaks caused by freezing damage can be prevented by proper winterization of the system. See WINTERIZATION section of this manual. Freezing damage is usually extensive and may include a burst water tank, split piping, and a damaged water pump, toilet, and water heater. If you experience this type of damage, repairs can best be made by an authorized RV Service Center.

Some campground water systems may operate at pressures that can burst the water lines in your motorhome or cause water pump failure. You, RV supply dealer can advise you on the best choice regarding water Pressure regulators.





## WATER PUMP TROUBLESHOOTING

The water pump in your system is a durable device that will operate for years with little attention. Most water pump problems can be solved by a commonsense approach. The following is a discussion of possible trouble spots and what to do.

### Pump Motor Does Not Operate

- Your motor home has two water pump switches. Be sure "Water Pump" master switch is on. Even though the pump operates automatically when a faucet is opened, the pump master switch has to be on for that to happen.
- Check battery condition. If the battery is discharged, the pump won't run.
- Check the fuse. The water pump fuse is located on the electrical distribution panel. If it is blown, there is a reason for it. Check the pump wiring for shorts. Do not replace the pump fuse with a fuse rated more than 10 amps.
- Check for disconnected or corroded wires or terminals. Clean and reconnect if necessary.
- In cold weather, check for pump freeze up. If water is frozen in the pump head, thaw it by placing a light bulb near the pump head. **DO NOT USE A TORCH OR OTHER OPEN FLAME.**

### Pump Motor Runs But No Water Flows

- Be sure there is water in the fresh water tank. Check level at the monitor panel. See **MONITOR PANEL** section.
- Check the filter. If it is clogged, remove it and try backflushing it as a temporary fix. If that doesn't work, it must be replaced.
- Check inlet and outlet hoses and fittings. Look for kinked or collapsed hoses, or loose clamps that could be letting air into the system. Avoid storing anything in the water pump area. A heavy item could flatten a hose or damage the inlet or outlet hoses and fittings.

### Pump Runs But Water Sputters

- This is normal after an initial filling of the tank and lines. It should stop in a few seconds.
- If sputtering continues, the water tank may be almost empty. Add water if necessary.
- If sputtering continues, check for air leaks in the inlet side of the pump.

### Pump Cycles On And Off When All Faucets Are Closed

- Check for leaks in the water lines.

- Be sure tank drain valves are tightly closed.
- The pump may have an internal leak. Refer pump repairs to an authorized Fleetwood RV Service Center.

### **Pump Does Not Shut Off**

- Water tank may be empty.
- Check battery condition. A low battery will allow the pump to run but not develop enough pressure to shut off.
- The pump switch mechanism may be stuck. Gently tap the switch cap on the end of the pump with a screwdriver handle.
- If the switch mechanism needs replacing, refer repairs to an authorized Fleetwood RV Service Center.

### **Pump Head Leaks**

- Tighten screws in pump head assembly. DO NOT OVERTIGHTEN.
- The head may be cracked. This can be caused by stress failure, but is more likely caused by water freezing in the pump head. Refer repairs to an authorized Fleetwood RV Service Center.

### **Pump Does Not Prime**

- Water tank may be empty.
- Inlet hoses may be kinked or collapsed.
- Filter may be clogged.
- Failure to prime is usually caused by internal pump valve failure or foreign material lodged in a valve seat. These conditions require pump disassembly. Refer these repairs to an authorized Fleetwood RV Service Center.

## **THE WASTE WATER SYSTEM**

The waste water system in your motor home is made up of sinks, tub, shower, toilet, plumbing drain lines, a "gray water" holding tank that accumulates waste water from sinks and tub only, and a "black water" holding tank that holds toilet wastes only. The holding tanks make the system completely self-contained and allow you to dispose of wastewater at your convenience. A flexible sewer hose is required to connect the holding tank outlets to the inlet of an approved wastewater dump station or sewer system.

The drain plumbing is very similar to that used in your home. The system is trapped and vented to prevent waste gases from backing up in to the motor home. The drain plumbing is made of ABS plastic, and is durable, and resistant to most chemicals. All drain plumbing except the toilet connection terminates in

the gray water holding tank. The toilet is mounted on the black water tank and flushes directly into it.

### **Toilet**

Your motor home is equipped with a marine-type toilet.

To operate the Aqua Magic IV:

- To flush, pull the black lever located on the right side of the toilet forward until rinse clears the bowl, then release the lever slowly.
- The water fill lever (white lever) can be operated independently of the flush to adjust the level of water in the bowl.

### **Toilet Maintenance**

The toilet does not require any routine maintenance. Clean the unit with a high grade, non-abrasive cleaner. DO NOT use highly concentrated or high acid household or toilet bowl cleaners. These products can damage the finish and valve components in the flush seal.

### **Holding Tanks**

The holding tanks terminate in a valve arrangement that permits dumping each tank separately or together. The valves are called "knife valves". A blade closes the opening in the sewer drainpipe. The blade is connected to a T-handle that is pulled to release the contents of the tank(s). During self-containment use, the sewer line is securely capped to prevent leakage of waste material onto the ground or pavement. DO NOT PULL THE HOLDING TANK KNIFE VALVE OPEN WHEN THE PROTECTIVE CAP IS INSTALLED ON THE PIPE. Always ensure that the tank is evacuated into an acceptable sewer inlet or dump station.

**WARNING: HOLDING TANKS ARE ENCLOSED SEWER SYSTEMS AND AS SUCH MUST BE DRAINED INTO AN APPROVED DUMP STATION. BOTH TOILET AND GRAY WATER HOLDING TANKS MUST BE DRAINED AND THOROUGHLY RINSED REGULARLY TO PREVENT ACCUMULATION OF HARMFUL OR TOXIC MATERIALS.**

### **Dumping The Holding Tanks**

Dump the holding tanks only when they are at least 3/4 full. If necessary, fill the tanks with water to 3/4 full. This provides sufficient water to ensure complete flushing of waste material into the sewer line. To dump the tanks:

1. Remove the sewer hose from the storage compartment. The sewer hose must be connected to the termination fitting with a clamp.
2. Place a container under the drain outlet to catch any water in the drain. Remove the protective cap from the outlet by turning it firmly counterclockwise.

3. Place the plastic termination fitting over the motor home drain outlet and secure by turning the fitting firmly clockwise. Be sure the clips catch firmly to hold the fitting in place.
4. Insert the Opposite end of the sewer hose into ground sewer or dump station inlet, pressing it firmly far enough into the opening to be secure. In some cases, adapters may be necessary between the line and the inlet. Arrange the sewer hose so it slopes evenly.
5. Dump the black water holding tank first. Unlatch the black water knife valve (the large one) by removing the wire clip or unscrewing the lock nut. Grasp the handle firmly and slide the valve open with a quick, steady pull.
6. Allow sufficient time for the tank to drain completely. Rinse and flush the tank through the toilet. When the tank is empty, push the handle inward to close the valve. Reset the locking device. Even if you are parked at a site with a semi-permanent sewer hook-up, close the black water knife valve to allow the waste to build up. The outlet will probably clog if you leave the knife valve open continually. Run enough water into the tank to cover the bottom. This will aid the break up of solid wastes.
7. To dump the gray water tank, repeat steps 5 and 6 for the small knife valve. This tank is dumped last to aid in flushing the outlets and hose. The gray water knife valve may be left open in a semi permanent hook-up.
8. Remove the sewer hose and replace the cap.
9. Rinse out the sewer hose with a fresh water hose or other supply and remove the sewer hose from the dump station.
10. Store the sewer hose and replace sewer or dump station covers:

PLEASE . . . USE GOOD HOUSEKEEPING WHEN DRAINING WASTES AT A CAMPSITE OR DISPOSAL STATION. LEAVE THE SITE IN GOOD ORDER. ABOVE ALL DO NOT POLLUTE.

### **Holding Tank Care and Maintenance**

Since the holding tanks don't rely on any sophisticated mechanical devices for their operation, they are virtually trouble-free. The most common problem is also an unpleasant one — clogging. You can minimize the chances of clogging by keeping the following considerations in mind:

- Keep the black water tank knife valve closed. Fill tank to at least 3/4 full before dumping. Be sure to cover the tank bottom with water after dumping.
- Use only toilet tissue formulated for use in septic tank or RV sanitation systems.
- Keep both knife valves closed and locked, and the drain cap tightly in place when using the system on the road.
- Use only cleaners that are approved for use in septic tank or RV sanitation systems.
- Use a special holding tank deodorant chemical approved for septic tank systems in the black water holding tank. These chemicals aid the breakdown of solid wastes, and make the system much more pleasant to use.
- Do not put 'facial tissue, paper, ethylene glycol based or other automotive anti-freeze, sanitary napkins, or household toilet cleaners in the holding tanks.
- Do not put anything solid in either tank that could scratch or puncture the tank.

If the drain system does get clogged:

- Do not use harsh household drain cleaners.
- Do not use motorized drain augers.
- Use a hand-operated probe to loosen stubborn accumulations. Seriously clogged P-traps may require disassembly. Be careful not to over tighten when reassembling. -
- Sometimes the holding tank valve will get clogged. In this case, a hand-operated auger may be necessary. Be ready to close the valve quickly once the clog is cleared. If the seal gets damaged, it is easily replaced.

### **WATER SYSTEM WINTERIZING**

If the motor home is to be stored unheated in temperatures below freezing, the fresh water and waste systems should be winterized.

1. Drain fresh water tank by opening the water tank drain valve.
2. Turn water pump on. Open a cold water faucet. When the flow of water stops, turn the pump off.
3. After opening hot and cold water faucets, open the drain valves on HOT and COLD water pipes. These valves are located under interior cabinets at floor level and drain through the floor.

4. Drain the water heater by opening the drain valve at the bottom of the heater and open the safety valve. Open the hot water faucets.
5. Open all cold water faucets, and depress the flush pedal or pull the flush levers on the toilet. When each faucet has been opened, drained, and closed, close the water line drain valves.
6. Drain the waste water system by following the normal procedure for draining the holding tanks.

**CAUTION: DRAINING THE WATER SYSTEM ALONE WILL NOT PROVIDE ADEQUATE COLD WEATHER PROTECTION. IF THE MOTORHOME IS TO BE UN-**

**HEATED DURING FREEZING TEMPERATURES: CONSULT YOUR DEALER FOR THE BEST WINTERIZATION PROCEDURE FOR YOUR CLIMATE. YOUR DEALER CAN WINTERIZE YOUR MOTOR HOME FOR YOU OR CAN SUPPLY YOU WITH ONE OF THE SPECIAL ANTIFREEZES WHICH ARE SAFE AND APPROVED FOR USE IN RV WATER SYSTEMS. FOLLOW THE INSTRUCTIONS FURNISHED WITH THE ANTIFREEZE.**

**WARNING: DO NOT USE AUTOMOTIVE OR WINDSHIELD WASHER ANTIFREEZE IN THE MOTORHOME WATER SYSTEM. THESE COULD BE HARMFUL IF SWALLOWED**

# THE ELECTRICAL SYSTEMS

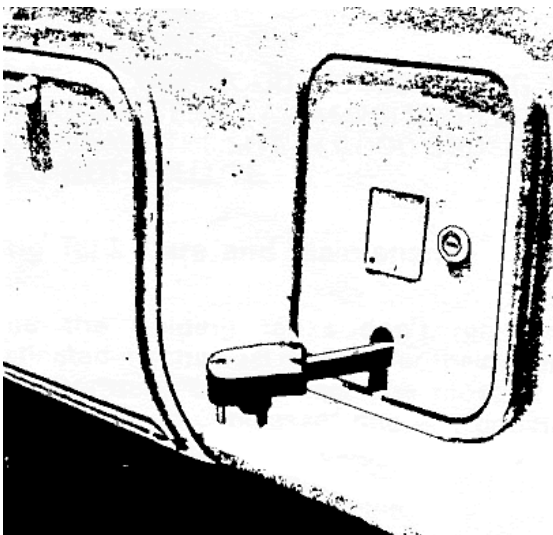
The electrical systems in your motor home are designed and built in accordance with all regulations, codes, and standards in effect at the time of manufacture.

There are three distinct electrical systems in your motor home.

- **Chassis system.** This is the vehicle electrical system. It includes the stop, tail, turn signal, clearance lights, and instrument panel accessories.

- **12 volt DC living system.** All 12 volt lighting fixtures and convenience outlets, 12 volt powered vents, fans, motors, and 12 volt accessories are included in this system. The fresh water pump and any 12 volt entertainment equipment are connected to this system. The 12 volt power source is a deep-cycle 12 volt lead-acid storage battery located in the battery compartment. Twelve-volt power is also provided by an AC/DC converter. Battery charge is maintained by the motor home engine alternator, or by the charging circuit included in the converter.

- **115 volt AC system.** This system provides grounded electrical service for appliances such as air conditioners, TV, blender, etc. The 115-volt system also provides a power source for the converter. Your motor home is equipped with a heavy-duty power cord to connect to an external 115 volt, 30 amp AC service. The cord and connector are molded together to form a weatherproof cable assembly. Do not cut or alter the cable in any way. Do not remove the ground



pin in the cable connector, or defeat the ground circuit in the motor home. If you have to use adapters to plug into an electrical service, be sure the ground is maintained.

**WARNING: DO NOT OPERATE THE 115 VOLT ELECTRICAL SYSTEM WITHOUT A PROPER GROUND.**

## BATTERIES

The auxiliary battery used in your motor home is designed especially for RV use. Although it may look like a regular automotive battery, a “deep-cycle” type is recommended that can tolerate the wide fluctuations in charge conditions encountered in recreational living.

Battery condition can be checked on the optional Monitor Panel. To check the battery charge:

1. Unplug the 115 volt AC power cord to turn the power converter off.
2. Press “BATTERY” rocker switch on the panel.
3. Turn on a light or any 12 volt appliance. The battery must be checked with a load.
4. Read battery condition on the meter. Red is poor, yellow is fair, and green is good.

## Battery Inspection and Care

**WARNING: DISCONNECT THE 115 VOLT ELECTRIC CORD AND THE POSITIVE TERMINAL FROM THE MOTOR HOME BATTERY BEFORE WORKING ON EITHER ELECTRICAL SYSTEM.**

**WARNING: REMOVE RINGS, METAL WATCHBANDS, AND OTHER METAL JEWELRY BEFORE WORKING AROUND A BATTERY: USE CAUTION WHEN USING METAL TOOLS. IF THE TOOL CONTACTS THE POSITIVE BATTERY TERMINAL OR METAL CONNECTED TO IT AND ANY OTHER METAL ON THE MOTOR HOME. A SHORT CIRCUIT COULD OCCUR WHICH COULD CAUSE PERSONAL INJURY OR FIRE.**

Check the external condition of the battery periodically. Look for cracks in the cover and case. Check the vent plugs. Replace them if they are cracked or broken. Keep the battery clean. Accumulations of acid film and dirt may permit current to flow between the terminals and discharge the battery. To clean the battery, wash it with a diluted solution of baking soda and water to neutralize any acid present, then flush with clean water.

Acid foaming around terminals or on top of the battery is normal acid neutralization. Avoid getting the soda solution in the battery. Be sure the vent caps are tight. Dry the cables and terminals. Don't use grease on the bare metal inside the cable terminals to prevent corrosion. Grease is an insulator. Electricity will not flow through it. A plastic ignition spray will protect the terminals after you have cleaned and reinstalled them.

To prevent the battery from shaking in its carrier, be sure the hold-down nuts are tight. Check them often. Keep the carrier and hold-down nuts clean and free of corrosion and chemical accumulation.

### **Battery Charging**

Normally the battery will be kept charged by either the motor home charging system while on the road, or by the AC/DC power converter when plugged into AC service. On those occasions when the battery needs to be charged from a different charging source, please follow these safety guidelines:

**WARNING: NEVER EXPOSE THE BATTERY TO OPEN FLAME OR ELECTRIC SPARK. CHEMICAL ACTION IN THE BATTERY GENERATES HYDROGEN GAS WHICH IS FLAMMABLE AND EXPLOSIVE. DO NOT ALLOW BATTERY ELECTROLYTE TO CONTACT SKIN, EYES, FABRICS, OR PAINTED SURFACES. THE ELECTROLYTE IS A SULPHURIC ACID SOLUTION WHICH COULD CAUSE SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE. WEAR EYE PROTECTION WHEN WORKING WITH BATTERIES.**

- Do not smoke near batteries being charged or which have been recently charged.
- Do not break live circuits at the terminals of the battery. Use care when connecting or disconnecting booster leads or cables on fast chargers. Poor connections are a common cause of electrical arcs which can cause explosions.
- Check and adjust the electrolyte level before charging. Fill each cell to the indicator with distilled water.
- Do not charge the battery at a rate that causes the electrolyte to spew out of the vent caps. Always remove vent caps before charging the battery.

### **Selecting a Replacement Battery**

When the battery requires replacement, always choose a battery with the same physical and electrical characteristics as the original equipment. In all cases, do not use a regular automotive battery for replacement. Your dealer can advise you on proper battery selection.

## **THE POWER CONVERTER**

The converter will supply 12 volt requirements when your motor home is operating on 115 AC volts. Thus you will not have to worry about running the battery down. When you are plugged into 115 AC volt service, the converter automatically switches the load from the battery to the converter. The onboard battery will gradually be brought up to a full charge and maintained by the battery charger as long as 115 volt power is available.

Maximum battery charge rate is 10 amps. Note that because the converter uses a special sensing circuit connected to the battery which draws a very small amount of current, the battery may become discharged if the motor home is not used for an extended period of time, or if the converter is not connected to a 115 volt AC source. Some accessories or equipment such as clocks, radios, or the refrigerator may draw small amounts of current even when turned "off".

If the power converter malfunctions or requires service, refer repairs to an authorized dealer.

## **AUXILIARY BATTERY**

The auxiliary battery(s) is the primary source for normal living-area needs. Sensing and switching circuits permit the vehicle alternator to charge all batteries as required and prevent the living area 12-volt requirements from depleting the vehicle battery.

NOTE: All living area radios and tape decks draw from the auxiliary battery and extended usage may discharge it.

## **FUSES AND CIRCUIT BREAKERS**

Fuses and circuit breakers for both the 115 volt and living area 12 volt systems are located on the power converter. If a circuit breaker trips, or a fuse blows, locate and remove the cause of the overload before resetting the breaker, or replacing the fuse.

**WARNING: DO NOT INSTALL 12 VOLT FUSES WITH AMPERAGE RATINGS GREATER THAN THAT SPECIFIED ON FUSEBOX.**

## **GROUND FAULT INTERRUPTER**

Bathroom outlets and patio outlets are protected by a Ground Fault Interrupter (GFI). This device is provided in compliance with ANSI A119.2/NFPA 501C requirements, and is intended to protect you against electrical shock possible when using electrical appliances in the bathroom or damp areas. Should the circuit or appliance (electric shaver, hair dryer, etc.) develop a potential shock hazard, the GFI device will disconnect the outlet, protecting you from injurious shock caused by leakage to ground.

Your Owner's Information Kit contains instructional material about the GFI. Please read this information. Test procedures are outlined there that must be followed and documented.

NOTE: If the patio outlet doesn't work, check the GFI. Reset it if necessary. If the GFI continues to trip, have the electrical system checked.

## **ENTERTAINMENT EQUIPMENT**

Instructional material for the optional entertainment system is included in your Owner's Information Kit.

If additional entertainment equipment requiring 12 volts DC power is installed in the motor home, obtain the 12 volt DC source from the Fused Battery Circuit at the power converter. If you install entertainment equipment requiring 12 volts DC be sure to install a choke filter with an amperage rating matched to the current requirements of the equipment.

## **GENERATOR POWER PLANT**

Your motor home may be equipped with a gasoline-powered generator which will provide complete electrical self-containment when regular public utility AC power is unavailable. Controls are at the generator and at a remote control panel located inside the motor home.

The 115 volt output of the generator is connected directly to a receptacle located inside the power cord storage compartment. With the generator power plant operating and the power cord plugged into this receptacle, power is available at all of the 115 volt power outlets in the motor home, just as if the cord were connected to an external source. Gasoline for the generator is taken from the main fuel tank through a special feeder tube which is higher in the tank than the feeder tube to the motor horn. This arrangement prevents the generator from running the motor home fuel tank dry.

NOTE: Refer to your Generator Power Plant Manufacturer's Instruction Manual (provided in your Owner's Information Kit) for service information before starting the generator. Do not start unit with a heavy power load. Always wait at least three minutes after starting generator before turning on (or plugging in) heavy electrical loads, such as the roof air conditioner.

To start the generator, hold the switch in the START position until the unit starts, then release the switch. If the unit is slow to start, DO NOT hold the switch in the START position for more than 10 seconds. Release the switch, wait 15 seconds, then repeat. This will help avoid overheating and damaging the generator starting system. If this system fails to start, the generator manual starting instructions are discussed in the generator power plant manufacturer's instructions. To stop the unit, hold switch to the STOP position until the engine stops.

## **Generator Operating Safety Precautions**

- Read and understand the generator operating, maintenance and safety instructions furnished in your Owner's Information Kit.
- Do not smoke or use an open flame near the generator unit or fuel tank.

- **WARNING: DO NOT BLOCK THE GENERATOR VENTILATING AIR INLETS OR OUTLETS. THE AIR-COOLED ENGINE REQUIRES A CONSTANT SUPPLY OF COOLING AIR. RESTRICTED VENTILATING AIR INLETS OR OUTLETS CAN CAUSE ENGINE FAILURE OR FIRE FROM ENGINE OVERHEATING.**

- Do not use generator ventilating air for heating any interior living space. Ventilating air can contain high concentrations of lethal gases.

- **WARNING: DO NOT PLACE FLAMMABLE MATERIAL OR STORE ANY OTHER MATERIALS IN THE GENERATOR COMPARTMENT.**

- Check engine fuel lines often. Fuel leakage in or around the compartment is an extreme fire hazard. Do not use the generator until fuel leaks are repaired.

- **WARNING: EXHAUST GASES ARE DEADLY. DO NOT BLOCK THE TAIL PIPE OR SITUATE THE MOTOR HOME IN A PLACE WHERE THE EXHAUST GASES HAVE ANY POSSIBILITY OF ACCUMULATING EITHER OUTSIDE, UNDERNEATH, OR INSIDE YOUR VEHICLE OR ANY NEARBY VEHICLES. OUTSIDE AIR MOVEMENTS CAN CARRY EXHAUST GASES INSIDE THE VEHICLE OR THROUGH WINDOWS OR OTHER OPENINGS REMOTE FROM THE GENERATOR EXHAUST. OPERATE THE GENERATOR ONLY WHEN SAFE DISPERSION OF EXHAUST GASES CAN BE ASSURED. AND MONITOR OUTSIDE CONDITIONS TO BE SURE THAT EXHAUST GASES CONTINUE TO BE DISPERSED SAFELY.**

- Be aware of exhaust gas (carbon monoxide) poisoning symptoms:

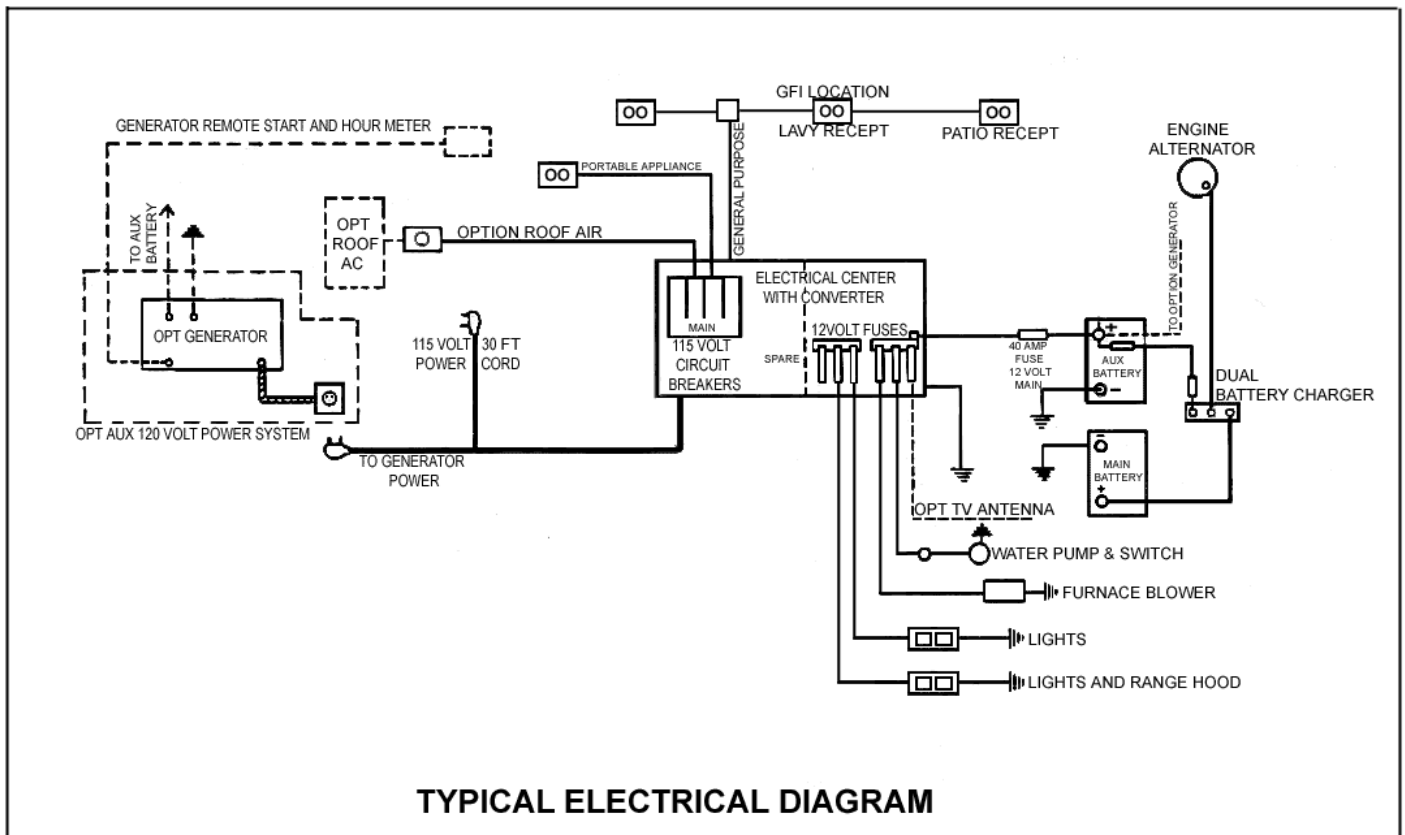
Inability to think coherently  
Dizziness  
Vomiting  
Intense headache  
Muscular twitching  
Weakness and sleepiness  
Throbbing in temples

- If symptoms indicate the possibility of carbon monoxide poisoning, turn off the generator immediately, open all windows doors and vents, get out into fresh air at once, and summon medical assistance.
- **WARNING: DO NOT UNDER ANY CIRCUMSTANCES OPERATE THE GENERATOR WHILE SLEEPING. YOU WOULD NOT BE ABLE TO MONITOR OUTSIDE CONDITIONS TO ASSURE THAT GENERATOR EXHAUST DOES NOT ENTER THE INTERIOR AND YOU WOULD NOT BE ALERT TO EXHAUST ODORS OR SYMPTOMS OF CARBON MONOXIDE POISONING.**
- Check the generator exhaust system after every 8 hours of operation and whenever the system may have been damaged, and repair any leaks or obstructions before further operation.
- **WARNING: DO NOT OPERATE THE GENERATOR WHEN PARKED IN OR NEAR HIGH GRASS OR BRUSH. EXHAUST HEAT MAY CAUSE A FIRE.**

- Do not modify the generator installation or exhaust system in any way without first consulting both the generator and RV manufacturers.
- Disconnect the generator starting battery before performing any maintenance on the generator.
- Allow the generator to cool sufficiently before performing any maintenance on the generator.
- Do not use the generator as an emergency power source to a general residential or industrial utility line.

## ELECTRICAL SYSTEM WIRING

These electrical schematics are typical for units built for the USA and Canada. They show the general wiring scheme for your motor home. If you need wiring information for a specific model or floor plan, contact your dealer





# APPLIANCES

The appliances installed in your motor home are either UL or AGA listed and comply with rigid standards established by these organizations. All appliances installed by the manufacturer in your motor home are covered under Fleetwood's Ownercare Warranty program. Each appliance is also warranted by its manufacturer, and a warranty registration card for each appliance is included in your Owner's Information Kit. Fill out the designated portions of the cards and mail them to the respective appliance manufacturers. Please consult the manufacturers instructions for additional detailed information.

## **Water Heater**

The water heater operates on LP gas, and is much like the one in your home. It contains an automatic shut off valve which stops the gas supply if the water temperature rises too high. The water heater is reached through an access panel on the outside of the motor home. **CAUTION: DO NOT LIGHT WATER HEATER UNTIL IT IS FILLED WITH WATER.** Turn on the hot water faucet at the galley sink. If water flows continuously, the heater is full. For detailed operating instructions refer to the manufacturers instruction manual.

## **Furnace**

The furnace is a forced-air unit fueled by LP gas. All furnaces are equipped with a wall thermostat for individual temperature settings. Your unit may be equipped with a blower type furnace that distributes heat directly through the front cover, instead of ducts. The operating manual included in your Owners Information Kit contains detailed operating and maintenance instructions.

**WARNING: PORTABLE FUEL-BURNING APPLIANCES ARE NOT TO BE USED FOR HEATING INSIDE THE MOTOR HOME.**

## **Range**

The gas oven and burners are operated with LP gas. The basic operation is the same as the range in your home. For additional information, please refer to the operating manual in your Owner's Information Kit.

A warning label has been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen is limited in an RV due to the size and construction of the vehicle. Proper ventilation when using the cooking appliances will prevent the dangers of asphyxiation. **WARNING: DO NOT USE OPEN FLAMES TO WARM THE LIVING AREA. GAS COMBUSTION CONSUMES THE OXYGEN INSIDE THE MOTOR HOME.**

## **Range Exhaust Hood**

The exhaust hood allows vapors and cooking odors to escape, and provides a vent for the galley area. The hood has a grease filter screen which requires periodic cleaning. To clean, remove the screen and wash in soapy water. Rinse with water and let the screen drain dry. Replace the cleaned filter in the exhaust hood.

## **Air Conditioner**

The optional roof-mounted air conditioner can operate only when the motor home is connected to 115 volt AC power from either a public utility or the generator. Be sure that the air conditioner's circuit breaker is turned ON. For best performance, park the motor home in the shade and close curtains. Close doors and windows and turn the temperature control knob for desired coolness. Refer to the air conditioner manufacturer's instructions for detailed operation and preventive maintenance requirements. Remember that this appliance requires a large portion of your available electric power.

## **Refrigerator**

The refrigerator may be operated from either LP gas or 12 volt/115 volt electric power. Consult the operating instructions furnished in your Owner's Information Kit. Before operating the refrigerator when the motor home is parked, make sure it is level. If it is not level, the refrigerant will not circulate, cooling action will stop, and the refrigeration system may be damaged.

# MAINTENANCE

Your motor home has been engineered with the latest technology to provide you with many years of trouble-free service with a minimum amount of maintenance. This section will familiarize you with the areas of your motor home that require scheduled care. A few minutes spent taking care of your motor home on a regular basis will pay for itself in extended service and will protect your investment. If you are mechanically inclined and regularly perform routine maintenance and repairs on your car or truck, you may want to do the mechanical work on your motor home. If you prefer, your dealer can perform these services for you. His trained personnel will assure that your motor home is maintained and repaired in keeping with original performance expectations.

The Chassis Operator's Manual provided in your Owner's Information Kit describes in detail maintenance operations required by the truck chassis manufacturer. Please consult this document for information regarding lubrication schedules, tire information, and other chassis-related maintenance items.

## EXTERIOR

### Tires

Inspect all tires for wear and damage. If general tread wear indicates only 1/16" between any two adjacent tread ribs, the tire should be replaced. Look for abnormal wear patterns such as cupping or feathering of the tread or rapid wear on either the inside or outside of the tread surface. If these conditions exist, an inflation, bearing adjustment or alignment problem is evident. Replace the tire if cuts, bulges, peeling tread or other signs of damage or failure are evident. Remove stones and other objects lodged in the tread.

Maintain proper pressure. The most common cause of tire failure is improper inflation. Keep an accurate tire gauge in your tool kit. Check tire pressures cold. DO NOT BLEED AIR OUT OF WARM TIRES.

### Body & Undercarriage

Wash the exterior of the motor home as you would your car or truck. Never use strong solvents or harsh abrasives to clean the exterior metal or fiberglass surfaces. A good quality automotive wax-polish will help maintain the finish.

Inspect the undercarriage after the winter driving season to detect damage to the corrosion protective coating.

### Windows, Doors, Vents & Locks

- Keep moving parts of windows and latches adjusted and maintained. Lubricate the windows with a light oil or powdered graphite at least once a year. Check and tighten the screws holding the windows in place periodically. Check the weather sealant. See SEALANT RENEWAL. Clean screens by gently wiping with a damp cloth or soft flat brush.
- Inspect the sealants around doors and windows every three months. See SEALANT RENEWAL.
- Ceiling vents use a sealed operating mechanism that requires no lubrication. To clean leaves and other debris from screens, remove the two Phillips-head screws, and remove the screens. Remove large debris, and clean screen surface with a damp cloth.
- Lubricate locksets and latches in entry doors and exterior storage compartments at least annually with powdered graphite. If the motor home is located at a beach or is exposed to salt air, more frequent lubrication may be required. Record the identification number of keys in the records space provided in this manual. This information will help you get duplicate keys in the event of loss.

### Sealant Renewal

The adhesives and sealants used in the construction of your motor home were developed to remain water-proof under sustained effects of weather and vibration. However, even the finest materials will eventually dry out and lose their effectiveness under constant heat of the sun and attack by other elements. This section outlines the procedures that you must follow to maintain the weather-proof integrity of your motor home. Leak damage caused by neglect to follow these procedures may affect your warranty coverage.

### Roof Resealing

Inspect the roof at least every six months, paying particular attention to the seams where the pieces of sheetmetal and/or fiberglass are joined. Carefully inspect the flange connections between air conditioners, vents, skylights, etc. If signs of cracking, weathering, or drying are evident, reseal as follows:

1. Remove any loose or cracked material down to bare metal or fiberglass. Use a wooden or plastic tool that will not gouge, pierce or otherwise damage the roof or wall surfaces.

2. Clean all areas requiring repair with a stiff wire brush. This is to be done dry. **DO NOT WASH WITH SOAP AND WATER. OR SOLVENTS.** Be sure the surface is as dust-free as possible.
3. Check and tighten any loose screws, bolts, or other fasteners. Be careful not to overtighten, or stripping will occur.
4. Apply the new sealant in a continuous bead along the seams and flanges, being careful not to leave any voids. Apply enough sealant to flow over the heads of all fasteners. Do not smooth out sealant by tooling.
5. Allow at least 48 hours for the sealant to set completely (firm and tack-free) when firmly pushed with the thumb) before washing or waxing the motor home.

### **Door & Window Re-Sealing**

Inspect the sealants around windows and doors at least every three months. If any of the following defects are evident during inspection, the affected areas must be resealed:

- Excessive amount of sealant protruding from joints
- Sealant cracked or peeling
- Voids in sealant

**NOTE:** Do not seal the bottom flanges of windows and doors. Two sealant voids have been intentionally left in the bottom flange sealant to provide exterior drainage in the event of leakage.

If you find any of the above defects:

1. Use a plastic scraper to remove excess sealant.

2. Clean all areas to be resealed with mineral spirits and clean rags. **WARNING: MINERAL SPIRITS IS A FLAMMABLE LIQUID. USE EXTREME CARE WHEN HANDLING AND USING. DO NOT EXPOSE TO OPEN FLAME. SPARKS. OR SMOKING MATERIALS DO NOT USE IN UNVENTILATED AREAS.**

Make sure that all areas to be resealed are absolutely dry before new sealant is applied.

## **INTERIOR**

### **Upholstery & Drapes**

Professionally dry clean only. Frequent vacuuming or light brushing between cleanings will help prevent accumulation of dirt and grime. Use of water-based or detergent-based cleaners may cause shrinking. Water stains may become permanent. **WARNING: DO NOT USE LACQUER THINNER, NAIL POLISH REMOVER. CARBON TETRACHLORIDE SPOT REMOVER. GASOLINE, OR NAPHTHA FOR ANY CLEANING PURPOSE. THESE PRODUCTS MAY CAUSE DAMAGE TO THE MATERIAL BEING CLEANED. AND ARE HIGHLY FLAMMABLE.**

### **Wall & Ceiling Panels**

The paneling and the ceiling of your motor home may be any of several finishes and textures. Never use harsh detergent or abrasive cleaners on walls or ceilings. Most surfaces will clean with a soft cloth moistened with mild liquid detergent in warm water. Do not use large amounts of water which could saturate the material.

### **Floors & Carpeting**

Vinyl flooring requires only washing and periodic waxing. Vacuum carpeting regularly, and clean it with a quality carpet cleaner.

## MAINTENANCE CHART

Service to be Performed	Service Interval				
	Each Trip	1,000 Miles	3 Months	6 Months	10,000 Miles/Yearly
Wash Exterior	<b>X</b>				
Inspect Tires	<b>X</b>				
Rotate and Balance Wheels				<b>X</b>	
Lubricate Locks					<b>X</b>
Lubricate Hinges					<b>X</b>
Inspect and Clean Vents					<b>X</b>
Clean Battery Cables and Terminals			<b>X</b>		
Inspect Suspension					<b>X</b>
Service Chassis (See Chassis Manual)				<b>X</b>	
Torque Lug Nuts (See Chassis Manual)		<b>X</b>			
Sanitize Water Tank			<b>X</b>		
Clean Drapes and Interior Fabrics					<b>X</b>
Service Power Plant (See Power Plant Manual)					
Check all exterior seams, roof, window, sidewall, windshield, etc.			<b>X</b>		
Reseal roof if necessary				<b>X</b>	
Reseal windows, sidewalls, doors				<b>X</b>	

## TRAVEL CHECK LIST

### FOOD - BEVERAGES

Bread  
 Milk  
 Sugar  
 Coffee  
 Tea  
 Salt  
 Pepper  
 Catsup  
 Mustard  
 Eggs  
 Bacon  
 Butter  
 Cheese  
 Lunch Meat  
 Meat Dinners  
 Potatoes  
 Vegetables  
 Fruit  
 Cereals  
 Cookies  
 Beverages  
 Soups  
 Crackers  
 Pancake Mix

### GALLEY

Dishes, Cups  
 Silverware  
 Tumblers  
 Coffee Pot  
 Pots, Covers  
 Pans, Covers  
 Utensils, Flipper  
 Paper Plates, Cups  
 Napkins  
 Paper Towels  
 Can Opener  
 Bottle Opener  
 Sponges  
 Dish Towels  
 Dish Drainer  
 Liquid Detergent  
 Soap Powder  
 Window Cleaner  
 Wax Paper/Foil  
 Plastic Bags  
 Large trash Bags  
 Portable BBQ  
 Charcoal Starter Fluid  
 Clothesline  
 Clothes pins  
 Matches  
 Water Pail  
 Candles

### TOILETRIES - PERSONAL

Face Soap  
 Wash Cloths  
 Hand Towels  
 Bath Towels  
 Bathmat  
 Rubber Shower Mat  
 Facial Tissues  
 Bathroom Tissue  
 Toothbrushes  
 Toothpaste  
 Hair Brush  
 Combs  
 Chapstick  
 Suntan Lotion  
 Razor & Blades  
 Nail Clippers  
 Insect Repellent  
 First Aid Kit  
 Snake Bite Kit  
 Sunglasses

### CLOTHING

Underwear  
 Jackets  
 Sweaters  
 Various Shoes  
 Socks  
 Bathing Suits  
 Hats, Caps  
 Rainwear  
 Handkerchiefs  
 Pajamas

### SLEEPING GEAR

Pillows  
 Pillow Cases  
 Sheets  
 Blankets  
 Sleeping Bags

### RELAXING - ENTERTAINMENT

Playing Cards  
 Jigsaw Puzzles  
 Games  
 Books, Magazines  
 Writing Pads, Pencils  
 Canopy or Awning  
 Battery Radio  
 Folding Chairs

### SPORTS

Fishing Rods  
 Tackle Box, Bait  
 Baseball Bat, Gloves  
 Football  
 Frisbee  
 Hiking Boots

Backpack  
 Hunting Knife  
 Pocket Knife  
 Pocket Compass  
 Swim Fins  
 Air Pump  
 Kite & String  
 Copy Peterson's "Field Guide"

### MISCELLANEOUS

Road Maps  
 Directory, Trailer Camps  
 Camera & Film  
 Sewing Kit, Patches  
 Clothes Hangers  
 Firewood

### TOOLS

Screwdriver  
 Adjustable Wrench  
 Pliers  
 Small Saw  
 Hammer  
 Hatchet  
 Folding Shovel  
 Lantern, Fuel Mantles  
 Flashlight  
 Spare Batteries, Bulb  
 Spare 12V Bulb  
 Spare 12V Fuses  
 Voltmeter  
 Circuit Test Light  
 Jumper Cables  
 Tire Air Gauge  
 Water Can  
 Gas can  
 Holding Tank Disposal  
 Hose(s)  
 Water Drain Pail  
 Flares or Reflectors  
 Holding Tank Chemicals  
 Fresh Water Hose  
 Fill Water Tank  
 Fill LPG Tank  
 Check Tires  
 Check Wheel Lugs  
 Check Batteries  
 Check Running Lights  
 Check Safety Chains  
 Check Brakes  
 Check Sway Control  
 Check Coupler