

2021 OWNER'S MANUAL



Wayfarer

TM SERIES



TIFFIN
MOTORHOMES

MADE TO MOVE YOU.

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MAINTENANCE AND DATA CHART



GENERAL INFORMATION

CHAPTER

1



MADE TO MOVE YOU.



DISCLAIMER

Many of the features and appliances in this manual may or may not be reflected in the actual motorhome purchased, depending on the options and models selected by the motorhome owner.

All items, materials, instructions and guidance described in this manual are as accurate as possible at the time of printing. However due to Tiffin Motorhomes ongoing and dedicated commitment to excellence, improvement of Tiffin motorhomes is an ongoing and continuous process.

Consequently, Tiffin Motorhomes reserves the right to make substitutions and improvements to its makes and models of motorhomes without prior notification. Substitutions of comparable or better materials, finishes, appliances, instrumentation and instruction may be made at any time it is deemed necessary to provide our owner's with the best possible motorhome meeting the owner's requirements.

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WELCOME TO A LIFE OF "ROUGHING IT SMOOTHLY"

Tiffin Motorhomes is excited that you have entered the world of motorhome travel. We believe that you and your family will enjoy this lifestyle for years to come. Your Tiffin motorhome provides all the luxuries and comforts of home while allowing you to travel freely as you choose.

Before heading out on the open roads, please take the time to make yourself familiar with this owner's manual to learn more about the operations of your motorhome.

Also, please work with your dealer to learn as much as possible about the functionality and features of your coach. And always remember - *"Wherever you go, we go."*



ABOUT THIS MANUAL

This operator/owner's manual was prepared with you in mind. We want to provide you with the information you need to properly care for and use your motorhome and all of its equipment. Please carefully read through this manual to help you understand how everything in your motorhome works.

NOTE: This owner's manual describes many features of your Tiffin Wayfarer and includes instructions for its safe use. The manual however, including its photography and illustrations is of a general nature. Some equipment and features described may be optional and or unavailable on your model.

The instructions included are meant to serve as a guide and in no way extend the responsibilities of Tiffin Motorhomes beyond the standard written warranty.

The descriptions, illustrations and specifications in this manual were correct at the time of printing and Tiffin Motorhomes reserves the right to change specifications or design without notice and without incurring obligation to install the same products previously manufactured.



TIFFIN MOTORHOMES



DELIVERY

Throughout the entire manufacturing process, your Tiffin motorhome has been regularly inspected by our qualified factory personnel to assure you of the finest product of the finest quality without exception.

However, the final inspection at our factory is not meant to be the last one. The pre-delivery inspection and system check that your dealer performs are the final inspections done to your particular motorhome prior to you actually receiving your coach.

Your dealer is also available to assist you in understanding the warranties and completing the necessary forms to activate the warranties for the various appliances and accessories installed in your motorhome.

DEALER RESPONSIBILITIES

1. A pre-delivery inspection and systems check is performed to assure a thorough inspection of the motorhome and to assure the proper operation of factory installed components.
2. A customer walk through is performed to familiarize the new owner with the motorhome, its systems and components, and their proper and safe operation.
3. Assisting the customer in completing the registration forms to avoid loss of warranty coverage. ***The dealer should review the limited warranty provisions with the customer to stress the importance of completing the warranty cards and registration forms for the components in the motorhome to enable the various manufacturers to receive them within the required time frame.***
4. Providing the customer with information regarding warranty and non-warranty work on the vehicle and its separately warranted components.



GENERAL INFORMATION

CUSTOMER RESPONSIBILITIES

The customer is responsible for regular and proper maintenance of the motorhome and its various components. Properly maintaining your motorhome will help prevent conditions arising from neglect that are not covered by your Tiffin Motorhome and components limited warranty.

The maintenance guidelines in this manual and any other applicable manual(s) should be followed. It is the owner's responsibility and obligation to return the vehicle to an authorized dealer for repairs and service.

To assist you in avoiding problems with your motorhome, it is recommended that you do the following:

1. Read the warranty. Go over it thoroughly with your dealer to make sure you understand all the terms and conditions of the warranty.
2. Please ask questions about anything you don't fully understand about your Wayfarer. Tiffin Motorhomes is here to serve you and assure that you have all the information necessary for your safe and enjoyable use of your new motorhome.
3. When you are taking delivery, setup an appointment for adjustments. ***This appointment should be within two weeks after you accept delivery of your new motorhome.***
4. You are responsible for an expected to use your Wayfarer in a responsible and safe manner. Please take the time to familiarize yourself with the proper operation of the motorhome and all of its features before you attempt to use your motorhome.
5. Once a year the roof seals need to be inspected and replaced if need be to prevent leaks. This can be done at a Tiffin Motorhomes Service Facility.

TIFFIN MOTORHOMES LIMITED WARRANTY

The Tiffin Motorhomes limited warranty was provided to you by your authorized Tiffin Motorhomes dealer during the pre-delivery inspection. When you inquire about your Tiffin Motorhomes warranty, please refer to this document. Should you need an additional copy, please contact:

Tiffin Motorhomes Inc.
625 Fawn Grove Road Winfield,
Alabama 35594

Tiffin Motorhomes will be pleased to send you an additional copy or any other information requested, as may be warranted.

MAJOR EQUIPMENT MANUFACTURERS

For those looking for more information (e.g., locations of authorized subsidiaries) the following website, www.rvamerica.com/data/s/_alist.htm should be very helpful. This site provides complete, alphabetical listings of all suppliers and vendors for all contemporary recreational vehicles and motorhomes.



WARRANTY SERVICE

Ford Motor Company covers for the full term of the bumper-to-bumper chassis warranty of 3 years or 36,000 miles, whichever comes first. It also provides for 4 years 60,000 miles on the engine and transmission.

Tiffin Motorhomes warranties its utilized construction for 1 (one) year and its laminations for 1 (one) year. Any service work performed after the expiration of the Tiffin Motorhomes warranties WILL NOT be covered under the conditions of the implied Tiffin Motorhome warranty. Exceptions may be made on an individual basis, to this deadline on account of the unavailability of parts and/or service appointment time where work is to be performed.

Neither Ford Motor Company nor Tiffin Motorhomes provides warranty for the motorhome tires. Please refer to the tire manufacturers guide provided in the Owner's Information Packet for any warranty information.

However, do not rely on the possibility of an exception: please schedule any desired in-warranty work before the expiration of your motorhome warranty.

CUSTOMER RELATIONS

If you wish to schedule maintenance, service or to order parts, you should notify your local authorized Tiffin Motorhomes dealership to setup an appointment or place an order. If you are unsure of the location of your nearest authorized Tiffin Motorhomes dealership, please access the Tiffin Motorhomes website at www.tiffinmotorhomes.com and then click on the "Locate Dealer" tab and then enter the appropriate search criteria such as state and retail sales. Then click on the Red Ball located on the map to pull up the dealer information for that area.

SPECIFICATION LABELS

There are two main labels used to identify your Tiffin Motorhomes Wayfarer. The **Vehicle Identification Number (VIN)** is the legal identification of the completed motorhome. The VIN is the number used by the state for the vehicle identification and registration.

(Figure 7.1 & 7.2)

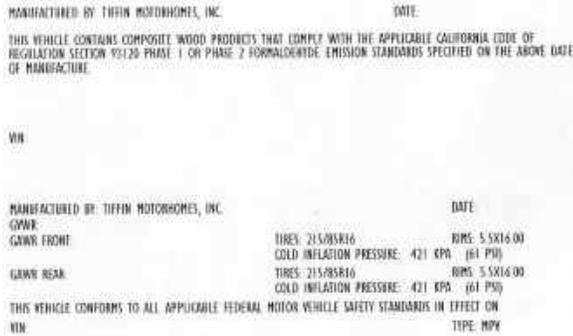


Figure 7.1
Wayfarer Vehicle Identification Label 1



Figure 7.2
Wayfarer Vehicle Identification Label 2



Figure 7.3
RVIA Official Label

Another label affixed to your Tiffin Wayfarer is the Recreational Vehicle Industrial Association (RVIA) label for Tiffin Motorhomes (Figure 7.3).

As a manufacturer's member of the RVIA Tiffin Motorhomes has the obligation to disclose the following information to the purchaser of the motorhome:

- An indication of the contents of the motorhome weight label affixed to the motorhome
- A concise explanation of the following items: **Vehicle Weight Distribution** and **Proper** weighing techniques to be used when weighing the coach.
- Specific definitions for the following terminology:
(Continued on Page 8)

SPECIFICATION LABELS CONTINUED

- **Gross Vehicle Weight Rating (GVWR)** - This is the maximum weight of the motorhome when it is fully loaded.
- **Unloaded Vehicle Weight (UVW)** - This is the weight of the motorhome as built at the factory, with full fuel, engine oil and coolants. The UVW does not include cargo, fresh water, LP gas or any dealer installed components.
- **Cargo Carrying Capacity (CCC)** - This is the maximum weight of all occupants including the driver, passenger(s), personal belongings, food, fresh water, waste water, gas, tools, tongue weight of towed vehicle (if applicable), dealer installed accessories and the like. The CCC is equal to or less than the GVWR minus the UVW.
- **Gross Combination Weight Rating (GCWR)** - This is the value specified by the chassis manufacturer as the maximum loaded weight of the motorhome with a towed trailer or vehicle (if applicable).
- **Sleeping Capacity Weight Rating (SCWR)** - This is the maximum weight capacity of the combined number of persons (i.e., number of people multiplied by 154 pounds per person) permitted to sleep within the motorhome.
(Please note this is a median average and actual passenger weight may vary).
- **Gross Axle Weight Rating (GAWR)** - This is the maximum allowable weight for an axle; the GAWR considers the weakest link in the tire, wheel, brakes, hubs, axle, springs and attaching parts. To illustrate, if the axle is rated for 15,000 pounds and the tires are rated at 3,200 pounds each as a dual installation, then the maximum GAWR would be 12,800 pounds for a four tire vehicle.

SAFETY ICONS AND MESSAGES

Please note that several icons and labels listed in this manual represent items that need your attention. The Notice, Caution, Warning and Danger icons and labels alert you to precautions that may help you avoid damage to your motorhome, its equipment and to your personal safety.

Please read and follow them carefully.



NOTICE: Notice is used to address practices not related to personal injury.



CAUTION: Caution indicates a hazardous situation, which if not avoided could result in minor or moderate personal injury.



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



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



MOTORHOME CAB

CHAPTER

2

THE MOTORHOME CAB



MOTORHOME CAB LAYOUT

1. Turn signal and wiper/washer control.
2. Headlamp control.
3. Driver airbag.
4. Cruise control buttons.
5. Instrument cluster.
6. Gear shift.
7. Electronic sound system.
8. Climate control system.
9. Emergency start.

WARNING LIGHTS



INSTRUMENT PANEL

1. Fuel gauge.
2. Engine coolant.
3. Engine oil.
4. Battery voltage.

WARNING LIGHTS CONTINUED



ENGINE COOLANT TEMPERATURE

Illuminates when the engine coolant temperature is high. Stop the vehicle as soon as possible, turn off the engine and let it cool.



ELECTRONIC THROTTLE CONTROL

Illuminates when the engine is in reduced power or "limp mode". Contact an authorized Ford Dealership for maintenance.



CHECK FUEL CAP

Illuminated when fuel cap may not be properly installed. May also cause the Service Engine Soon (SES) light to illuminate.



AIR-BAG READINESS

Comes on momentarily when the ignition is turned to the ON position. If the light fails to illuminate, continues to flash or remains on, contact an authorized Ford Dealership for maintenance.



TOW HAUL (ALSO See P.16)

Illuminates when Tow/Haul is active. If light flashes steadily, contact an authorized Ford Dealership for maintenance.



ANTI-LOCK BRAKE SYSTEM (ABS)

If the light remains on or flashes continuously, contact an authorized Ford Dealership for maintenance.
With the ABS light on, the anti-lock brake system is disabled and normal braking is still effective unless the brake warning light also remains illuminated with the parking brake released.



HIGH BEAMS

Illuminates when the high beam headlights are turned on.

WARNING LIGHTS CONTINUED



SPEED CONTROL (CRUISE CONTROL)

Illuminates when the speed control (cruise control) is activated.



ELECTRONIC THROTTLE CONTROL

Illuminates when the engine is in reduced power or "limp mode". Contact an authorized Ford Dealership for maintenance.



LOW FUEL

Illuminates when the fuel tank is nearing empty or completely empty.



BRAKE SYSTEM WARNING

Illuminates if the parking brake is engaged. If illuminated with the parking brake released, indicates low brake fluid level and the brake system should be inspected immediately. Contact an authorized Ford Dealership for maintenance.



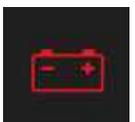
SAFETY BELT

Momentarily illuminates when the ignition is turned to the **ON** position to remind you to fasten your safety belts.



DIRECTIONAL INDICATORS

Illuminates when the left or right turn signal or the hazard lights are turned on. If one or both of the indicators stay on continuously, check for a burned out turn signal bulb.



CHARGING SYSTEM

Illuminates when the ignition is turned to the **ON** position and the engine is off. If this light illuminates when the engine is running, contact an authorized Ford Dealership for maintenance.

WARNING LIGHTS CONTINUED



SERVICE ENGINE SOON (SES) SES LIGHT IS CONTINUOUSLY LIT:

A continuously lit SES light means that one of the engine's emission control systems may be malfunctioning. The malfunction may be a temporary condition. Examples of temporary conditions which may cause the SES light to illuminate are:

1. The motorhome has run out of fuel. (The engine may misfire or run poorly).
2. Poor fuel quality or water in the fuel system.
3. The fuel cap may not have been properly installed and/or securely tightened

Filling the fuel tank with good quality fuel and/or properly installing the gas cap can correct a temporary malfunction. After three driving cycles without these or any temporary malfunctions present, the SES light should turn off. (A driving cycle consists of a cold engine startup followed by mixed city/highway driving). If the SES light remains on after 3 engine cycle, contact an authorized Ford Dealership for Maintenance



SERVICE ENGINE SOON (SES) CONTINUED: SES LIGHT IS FLASHING:

A flashing SES light means the engine is misfiring, Contact an authorized Ford Dealership for maintenance.



ENGINE OIL

Illuminates when the engine oil pressure is low, Add engine oil as soon as possible. Use engine oil specified by Ford Motor Company. If the oil light remains luminated, contact an authorized Ford Dealership for maintenance.

WARNING LIGHTS CONTINUED

TROUBLESHOOTING THE ABS AND BRAKE WARNING LIGHTS

PROBLEM	POSSIBLE CAUSES	CHECKS/SOLUTIONS
ABS light and Brake light are both lit	<ol style="list-style-type: none">1. Speed sensor malfunction2. Combination ABS problem plus parking brake on or low brake fluid	<ol style="list-style-type: none">1. Call an authorized Ford Dealership immediately for maintenance.2. Release parking brake or check and fill the brake fluid. Call an authorized Ford Dealership for maintenance.
ABS light flashing or stays lit	Anti-lock brake system is disabled and normal braking is still effective.	Contact an authorized Ford Dealership for maintenance.
Brake light is lit	<ol style="list-style-type: none">1. Parking brake may be on2. Low on brake fluid	<ol style="list-style-type: none">1. Release parking brake.2. Contact an authorized Ford Dealership for maintenance.

TOW/HAUL LIGHTS

For mountain driving conditions, select the "Tow-Haul" (Image 16.1) option on the gear shift. The vehicle will then automatically slow down descending hills so you do not have to put extra pressure on the motorhomes braking system.

Just press the button on the end of the gearshift (Image 16.2) to turn it on and off.

There will either be:

1. A Tow/Haul light and button on the gearshift, or;
2. A Tow/Haul light below the oil pressure gauge and a Tow/Haul button on the gearshift. See images (16.1 and 16.2).



Image 16.1
Tow/Haul Dash Light Illuminated



Image 16.2
Tow/Haul Activation Button

WARNING CHIMES AND BUZZERS

SAFETY BELT WARNING CHIME/BUZZER

Sounds to remind you to fasten your safety belts.

KEY-IN-IGNITION WARNING CHIME/BUZZER

Sounds when the key is in the ignition in the **OFF/LOCK** or **ACC** position and the driver's door is opened.

HEADLAMPS ON WARNING CHIME

Sounds when the headlamps or parking lamps are on, the ignition is off (the key is not in the ignition) and the driver's door is opened.

PARKING BRAKE ON WARNING CHIME

Sounds when the parking brake is set, the engine is running and the motorhome is moving at 3 MPH or more.

GAUGES



Image 18.1
Engine Oil Pressure Gauge

ENGINE OIL PRESSURE GAUGE

Shows the engine oil pressure (Image 18.1). Sufficient pressure exists as long as the needle remains in the normal range (the area between the low and high range on the gauge).

If the gauge indicates low pressure, stop the motorhome as soon as possible and switch off the engine immediately.

Check the oil level and add oil if needed. However, if the oil level is correct, contact an authorized Ford Dealership for maintenance.



Image 18.2
Battery Voltage Gauge

BATTERY VOLTAGE GAUGE

Shows the battery voltage when the ignition is in the ON position (Image 18.2). If the pointer moves and stays outside the "NORMAL" operating range, contact an authorized Ford Dealership for maintenance.



Image 18.3
Engine Coolant Temperature Gauge

ENGINE COOLANT TEMPERATURE GAUGE

Indicates the temperature of the engine coolant (Image 18.3). At normal operating temperature, the needle remains within the normal area (the area between the "C" and the "H"). If it enters the "H" section, the engine is overheating.

Stop the motorhome as soon as safely possible, switch off the engine and let it cool. "Never remove the coolant reservoir cap while the engine is running or hot".

The gauge indicates the temperature of the coolant, not the coolant level. If the coolant is not at it's proper level the gauge will not be accurate.

GAUGES CONTINUED



Image 19.1
Fuel Gauge

FUEL GAUGE

Displays approximately how much fuel is left in the fuel tank when the key is in the **ON** position. The fuel gauge may vary slightly when the motorhome is in motion.

The ignition should be in the **OFF** position while the motorhome is being refueled. (All appliances and the Liquid Propane (LP) system should also be turned "**OFF**" when refueling the motorhome).

When the gauge first indicates empty, there is a small amount of reserve fuel in the tank. When refueling the motorhome from an empty indication, the amount of fuel that can be added will be less than the advertised capacity due to the reserve fuel.

CONTROLS

HEADLAMP CONTROL

The headlamp control is located on the dash, left of the steering column. Pull it towards you to the first position to turn on the parking lamps, tail lamps, license plate lamps and marker lamps.

Pull the headlamp control toward you to the outer position to turn on the headlamps in addition to the previous lamps.

REMEMBER: TURN HEADLAMPS OFF WHEN YOU TURN THE ENGINE OFF.

DAYTIME RUNNING LAMPS

This motorhome may be equipped with daytime running lamps. If so, it turns on the headlamps with a reduced output provided the ignition switch is in the **ON** position and the headlamp control is in the **OFF** or Parking Lamps position.

Always remember to turn on your headlamps at dusk or during inclement weather. The Daytime Running Lamp System does not provide adequate lighting under these conditions. **Failure to activate your headlamps under these conditions may result in a collision.**

HIGH BEAM CONTROL

High beam control is located at the end of the turn signal lever on the left of the steering column. Push the lever forward to activate and pull toward you to deactivate the high beams.

PANEL DIMMER CONTROL

The instrument panel dimmer control is built into the headlamp switch on the dash. Rotate the knob clockwise/counterclockwise when the headlamp control is in the parking lamp or low beam position. To turn on the courtesy lamp(s), rotate the knob fully counterclockwise.

CONTROLS CONTINUED

HAZARD FLASHER SWITCH

The hazard flasher, also called the "**EMERGENCY FLASHER**" or four way flasher , is controlled from a switch located on the top of the steering column.

Use this only in an emergency to warn traffic of a vehicle breakdown, approaching danger, etc. The hazard flashers can be operated when the ignition is "**ON**" or "**OFF**". Depress the control button to activate all hazard flashers simultaneously. Depress the button again to turn the flashers off.

DIRECTIONAL INDICATORS

Push down to signal a left turn and push up to signal a right turn.

WINDSHIELD WIPER/WASHER CONTROL

The windshield wiper/washer control is located at the end of the turn signal on the lever on the left side of the steering column. Rotate the windshield wiper control to the desired interval, low or high speed position.

The bars of varying lengths on the turn signal arm are for intermittent wipers. When in this position, rotate the control upward for fast intervals and downwards for slow intervals.

Push the control on the end of the turn signal arm to activate the windshield washer. Push and hold for a longer wash cycle. The washer will automatically shut off after ten seconds of continuous use.

CONTROLS CONTINUED

SPEED CONTROL (CRUISE CONTROL)

All of the controls are located on the center section of the steering wheel (Image 22.1). **Do not use the cruise control in heavy traffic or on roads that are winding, slippery or unpaved.**

Do not shift the gearshift lever into neutral with the cruise control on. On the left side are the ON/OFF controls (Image 22.1 numbers 1&2.) Press the "ON" button (Image 22.1 number 1) to engage the cruise control.



Image 22.1
Steering Wheel Cruise Control Buttons



NOTICE: The motorhome speed must be at least 30 miles per hour for the cruise control to engage.

To turn the cruise control off, press the "OFF" button (Image 22.1 number 2). Once the cruise control is switched "OFF", the previously programmed set speed will be erased. The remainder of the cruise control buttons are located on the right side of the steering wheel.

To set a speed, press the "SET ACCEL" button (Image 22.1 number 4).

If you drive up or down a steep hill, your speed may vary momentarily slower or faster than the set speed. This is normal.

Cruise control cannot reduce the motorhome speed if it increases above the set speed on a downhill. If your motorhome speed is faster than the set speed while driving downhill, you may want to shift to the next lower gear or apply the brakes to reduce your vehicle speed.

To set a higher speed, press and hold the "SET ACCEL" button. Release the button when the desired motorhome speed is reached. Or you may repeatedly press and release the "SET ACCEL" button. Each press will increase the set speed by 1 mile per hour or you can accelerate with your accelerator pedal.

When the desired vehicle speed is reached, press and release the "SET ACCEL" button.

CONTROLS CONTINUED

SPEED CONTROL (CRUISE CONTROL) CONTINUED

You can accelerate with the accelerator pedal at any time during cruise control use. Releasing the accelerator pedal will return your vehicle to the previously programmed speed.

To select a slower set speed, press and hold the "**COAST**" button (Image 22.1 number 5). Release the button when the desired speed is reached or you may repeatedly press and release the "**COAST**" button.

Each press of the "**COAST**" button will decrease the set speed by 1 mile per hour or depress the brake pedal. When the desired motorhome speed is reached, press the "**SET ACCEL**" button.

To disengage the cruise control, depress the brake pedal. Disengaging the cruise control will not erase the previously programmed set speed. Pressing the "**OFF**" button, (Image 22.1 number 2) will erase the previously programmed set speed.

To return to a previously set speed, press the "**RES**" button (Image 22.1 Number 3). For the "**RES**" button to operate, the motorhome speed must be higher than 30 miles per hour.

If your motorhome slows down more than 10 miles per hour below your set speed on an uphill, your cruise control will disengage. This is normal. Pressing the "**RES**" button will rein-gage your cruise control.

HEATING, VENTILATION AND AIR CONDITIONING

FAN CONTROL

Controls the volume of air circulated in the drivers cab of the motorhome.

TEMPERATURE CONTROL KNOB

Controls the temperature of the airflow inside the motorhome in the drivers cab area. This occurs when the selector is set on heater or air conditioner.

MODE SELECTOR CONTROL

Controls the direction of the air flow to the inside of the motorhome in the drivers cab area. It allows selection of heater, vent or air conditioner. In the "**OFF**" setting, outside air is shut out and the fan will not operate. For short periods of time only, use this mode to prevent undesirable odors from entering the motorhome through the drivers cab area.

MAX A/C uses recirculated air to cool the motorhome drivers cab area. **MAX A/C** is noisier than **NORM A/C** and will cool down the drivers cab area faster. Airflow will come from the instrument panels registers. This mode can also be used to prevent undesirable odors from entering the motorhome from the drivers cab area.

NORM A/C uses outside air to cool the motorhomes drivers cab area. It is quieter than **MAX A/C**. Airflow will be from the instrument panels registers.

VENT distributes outside air through the instrument panel registers. However, the air will not be cooled below the outside temperature because the air conditioning does not operate in this mode.

FLR allows for maximum heating by distributing outside air through the floor ducts. However, the air will not be cooled below the outside temperature because the air conditioning does not operate in this mode.

MIX distributes outside air through the windshield defroster ducts and the floor defroster ducts. Heating and air conditioning capabilities are provided in this mode. For added comfort, when the temperature control knob is anywhere in-between the full hot and full cold positions, the air distributed through the floor ducts will be slightly warmer than the air sent to the windshield defrost ducts.

If the temperature is about 50 degrees fahrenheit (10 degrees celsius) or higher, the air conditioning will automatically dehumidify the air to reduce fogging.

HEATING, VENTILATION AND AIR CONDITIONING CONTINUED

MODE SELECTOR CONTROL CONTINUED

DEF distributes outside air through the windshield defroster ducts. It can be used to clear ice or fog from the windshield. If the temperature is about 50 degrees fahrenheit (10 degrees celsius) or higher, the air conditioner will automatically dehumidify the drivers cab air to reduce fogging.

OPERATING TIPS

In humid weather, select defroster before driving. This will reduce fogging on your windshield. After a few minutes, select any desired position. To prevent humidity buildup inside the motorhomes driver's cab area, do not drive with the climate control system in the "**OFF**" position.

Remove any snow, ice or leaves from the air intake area located at the bottom of the windshield. If the motorhome has been parked with the windows closed during hot weather, the air conditioning will do a much faster job of cooling if you drive for 2 or 3 minutes with the drivers and passengers door windows open. This will force most of the hot, stale air out of the motorhomes driver's cab area. Then operate your air conditioner as you normally would.

Do not place objects over the defroster outlets. These objects can block airflow and reduce your ability to see through the windshield. Also, avoid placing small objects on top of your instrument panel. These objects can fall down into the defroster outlets, block airflow and possibly damage the climate control system.

SEATS AND SEAT BELTS

SAFETY RESTARTS

There are two adjustments that may be made to the driver and passenger seats. Lift the handle on the front of the seat to move the seat forward or backward. Pull the lever located on the side of the seat next to the door to adjust the seat-back.

Always drive and ride with your seat-back upright and the lap belt low across the hips.

Reclining the seat-back can reduce the effectiveness of the seat's safety belt in the event of a collision.

The driver and passenger seat are equipped with a combination lap and shoulder belt. To use, insert the belt tongue into the proper buckle until you hear a snap and feel it latch. The proper buckle is the one that is closest to the direction the tongue is coming from. Make sure the tongue is securely fastened in the buckle.

To unfasten, push the release button and remove the tongue from the buckle.



WARNING: NEVER ADJUST THE DRIVER'S SEAT OR SEATBACK WHEN THE MOTORHOME IS IN MOTION.

SAFETY BELT PRETENSIONER

The motorhome is equipped with safety belt pretensioners at the driver and front passenger seating positions.

The safety belt pretensioner is a device which removes excess webbing from the safety belt system. The safety belt pretensioner uses the same crash sensor system as the front air bag supplemental restraint system.

When the safety pretensioner deploys, webbing from the lap and shoulder belt is tightened.

SEATS AND SEAT BELTS CONTINUED

SAFETY BELT HEIGHT ADJUSTMENT

The motorhome has safety belt height adjustments for the driver and front passenger. Adjust the height of the shoulder belt so the belt rests across the middle of your shoulder.

To lower the shoulder belt height, push the button and slide the height adjuster down. To raise the height of the shoulder belt, slide the height adjuster up. Pull on the height adjuster to make sure it is locked in place.

Position the shoulder belt height adjuster so that the belt rests across the middle of your shoulder. Failure to adjust the safety belt properly could reduce the effectiveness of the safety belt and increase the risk of injury in a collision.

IGNITION SWITCH

The ignition switch has five positions.

NOTE: The positions are not marked.

1. **ACCESSORY** allows the electrical accessories such as the radio to operate while the engine is not running.
2. **PARK** locks the steering wheel, automatic transmission gearshift lever and allows for key removal.
3. **OFF** shuts off the engine and all accessories without locking the steering wheel.
4. **ON** all electrical circuits operational. Earning lights illuminated and is the key position when driving.
5. **START** cranks the engine. Release the key as soon as the engine starts.

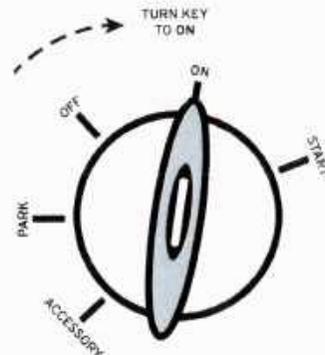


Image 27.1
Ignition Switch with Positions Noted

CONTROLS CONTINUED

TILT STEERING

The motorhome is equipped with a tilt steering wheel. The control is a small stalk located under the steering wheel to the left.

Just pull the tilt steering control towards you to move the steering wheel up and down. Hold the control while adjusting the wheel to the desired position, then release the control.

WARNING: NEVER ADJUST THE STEERING WHEEL WHILE THE MOTORHOME IS MOVING.



FAILURE TO DO SO COULD RESULT IN A COLLISION RESULTING IN SERIOUS BODILY INJURY UP TO AND INCLUDING DEATH



DRIVING AND ROAD RULES

CHAPTER

3

SAFE DRIVING

BEFORE DRIVING AWAY

Before getting into the drivers seat, always observe the area around your motorhome. A car, bicycle, child or tree branch may be in the area of the motorhome and could remain unseen until it is too late.

There are blind spots that must be checked when parking or backing up your motorhome each and every time it is used.

Before starting the engine, take a walk around the inside and outside of the motorhome.

BE SURE THAT

- * The shore line is plugged into the receptacle inside the shore line compartment.
- * All compartment doors are latched and locked.
- * Nothing is left behind.
- * Fresh water hose and dump hose are disconnected and stored.
- * Check your fresh water supply. Be sure that you have enough water to reach your destination.
- * There is no evidence of fluid leaks under the vehicle.
- * Roof vents are closed.
- *The refrigerator door is latched.
- * Cabinet doors and drawers are closed.
- * Coach entry door is closed AND DEADBOLT is engaged.
- *There are no loose items in the motorhome. Do not place heavy items in overhead storage areas.

*You check your fuel supply. Be sure you have enough to reach your next fuel stop.

* You close exterior sewer caps and close the sewer valves.

*You check you overhead clearance.

*Side-view mirrors are properly aligned and tight. To drive safely, you must use the side view mirrors, so try to become accustomed to them as soon as possible.

*You always use a spotter and extreme caution in confined areas. The majority of accidents happen while maneuvering in tight conditions such as a parking lot or service station.

* You remember to buckle up.

***THE PARKING BRAKE IS RELEASED.**

PREPARING TO START YOUR VEHICLE

Before starting the engine, make sure that all motorhome occupants have buckled their safety belts. Make sure the headlamps and vehicle accessories are off. Make sure the parking brake is set.



NOTICE: When starting a fuel injected engine, avoid pressing the accelerator before or during starting. Only use the accelerator when you have difficulty starting the engine.

CAUTION: If there is difficulty in turning the key, firmly rotate the steering wheel left and right until the key turns freely.



This condition may occur when the front wheels are turned or one of them is against a curb or when the steering wheel is turned. Several instrument panel lights will illuminate briefly.

STARTING THE ENGINE

Turn the key to **START** without pressing the accelerator pedal. Release as soon as the engine starts. The key will return to the **ON** position.

If the engine does not start within five seconds on the first try, turn the key to the **OFF** position. After ten seconds try again. If the engine does not start after two attempts, wait ten seconds and then press the accelerator pedal 1/3 to 1/2 of the way to the floor and hold.

Turn the key, when the engine starts release the key and the accelerator pedal. Allow the engine to run at idle for a few seconds before driving.



NOTICE: If the temperature is below 10 degrees farenheit, allow up to 15 seconds per try for the engine to start.

A computer system controls the engines idle revolutions per minute or RPM. When the engine starts, the idle RPM runs faster to warm the engine. If the engine idle speed does not slow down automatically, contact an authorized Ford Dealership for maintenance. Do not allow the motorhome to idle for more than 10 minutes at higher engine RPM.



DANGER: EXTENDED IDLING AT HIGH SPEEDS CAN PRODUCE VERY HIGH TEMPERATURES. CREATING THE RISK OF FIRE OR OTHER DAMAGE.

PREPARING TO START YOUR VEHICLE CONTINUED

EMERGENCY START

Your motorhome has an emergency start switch (Image 32.1) for use if the engine compartment battery becomes discharged or is effected by cold weather.

This switch temporarily connects the coach battery to the engine compartment battery for extra starting power.

To use the emergency start system:

1. Be sure the motorhome is stopped, shifted into "P" (Park) and apply the brake.
2. Press and hold the Emergency Start Switch.
3. Start engine with ignition switch.
4. Release the Emergency Start Switch.



Image 32.1
Emergency Start Button

TROUBLESHOOTING

PROBLEM:

Engine cranks slowly or not at all

SOLUTION 1:

Use Emergency Start Switch (Image 32.1)

SOLUTION 2:

Clean and/or tighten the battery terminal cables.

DRIVING YOUR MOTORHOME



WARNING: DO NOT PARK, IDLE OR DRIVE THE MOTORHOME IN DRY GRASS OR OTHER DRY GROUND COVER. THE EMISSION SYSTEM HEATS UP THE ENGINE COMPARTMENT AND EXHAUST SYSTEM, WHICH CAN START A FIRE.



WARNING: ALTHOUGH ODORLESS AND COLORLESS, CARBON MONOXIDE IS PRESENT IN EXHAUST FUMES. TAKE PRECAUTIONS TO AVOID ITS DANGEROUS EFFECTS. IF YOU SMELL EXHAUST FUMES INSIDE THE MOTORHOME, CONTACT LOCAL EMERGENCY RESPONSE TEAMS IMMEDIATELY. DO NOT DRIVE IF YOU SMELL EXHAUST FUMES.

BRAKES

The service brakes are self adjusting. Occasional brake noise is normal and often does not indicate a performance concern with the motorhomes brake system. In normal operation, automatic brake systems may emit occasional or intermittent squeal or groan noises when the brakes are applied.

Such noises are usually heard during the first few brake applications in the morning; however they may be heard at any time while braking and can be aggravated by environmental conditions such as cold, heat, moisture, road dust, salt or mud.



CAUTION: If a "metal to metal" continuous grinding or continuous squeal sound is present while braking, the brake linings may be worn. Contact an authorized Ford Dealership or certified service facility immediately.

DRIVING YOUR MOTORHOME CONTINUED

FOUR-WHEEL ANTI-LOCK BRAKE SYSTEM (ABS)

Your motorhome is equipped with Anti-Lock (ABS) brakes. Use anti-lock brakes like normal brakes. You may feel the brakes vibrate, or you may notice some noise outside your motorhome, but this is normal. Let anti-lock work for you, but remember: Your front wheels can still stop rolling. If that happens, release enough pressure on the brakes to get the wheels rolling again so you can steer.

The (ABS) symbol on your dash momentarily illuminates when the ignition is turned on and the engine is off. If the light stays on, the (ABS) needs to be serviced. With the (ABS) light on, the anti-lock brake system is disabled and normal braking is still effective unless the brake warning light also remains illuminated with the parking brake released.

The (ABS) performs a self-check after you start the engine and begin to drive away. A brief mechanical noise may be heard during this test. This is normal. If a malfunction is found, the (ABS) warning light will come on. If the motorhome has a continuous vibration or shudder in the steering wheel while braking, please contact an authorized Ford Dealership for maintenance.

The (ABS) operates by detecting the onset of wheel lockup during braking applications and compensates for this tendency. The wheels are prevented from locking even when the brakes are firmly applied. In an emergency or when maximum efficiency from the (ABS) is required, apply continuous force on the brake pedal.

The (ABS) will be activated immediately, thus allowing you to retain full steering control of your motorhome and, providing there is sufficient space will enable you to avoid obstacles and bring the motorhome to a controlled stop.

The anti-lock system does not decrease the time necessary to apply the brakes or always reduce stopping distance. Always leave enough room between your motorhome and other vehicles in front and around you.

DRIVING YOUR MOTORHOME CONTINUED

IN CASE OF SUDDEN TIRE FAILURE

- Avoid heavy brake application.
- Gradually decrease speed.
- Hold the steering wheel firmly and move slowly to a safe, off road place.
- Park on a firm level spot.
- Turn off the ignition.
- Turn on the hazard flasher system.
- Contact a local authorized service center or if purchased separately, your roadside assistance company.

BRAKE SHIFT INTERLOCK

Your motorhome is equipped with a brake shift interlock feature. This feature prevents you from shifting from "**PARK**" unless you have the brake pedal depressed. (The ignition must be in the "**ON**" position).

Always depress the brake pedal before attempting to move the gearshift selector out of "**PARK**".



WARNING: WHEN PARKED, HOLD THE BRAKE PEDAL DOWN WHEN YOU MOVE THE GEARSHIFT SELECTOR FROM ONE POSITION TO ANOTHER. IF YOU DO NOT HOLD THE BRAKE PEDAL DOWN, YOUR MOTORHOME MAY JUMP WHILE IN GEAR.

DRIVING USING THE GEARSHIFT

P (PARK)

Always come to a complete stop before you shift into **"P" (PARK)** (Image 36.1). This position locks the transmission and prevents the wheels from turning. To securely latch the gearshift in the **"P" (PARK)** position, pull it towards you and push it completely (left) against the stop and then push it towards the instrument panel. The gearshift is securely latched in **"P" (PARK)** if you cannot rotate it in a clockwise direction without lifting it toward you.



Image 36.1
Gearshift Indicator in "PARK"

R (REVERSE)

With the gearshift in the **"R" (REVERSE)** position, the motorhome will move backwards. You should always come to a complete stop before shifting into or out of **"R" (REVERSE)**.

N (NEUTRAL)

With the gearshift in **"N" (NEUTRAL)** position, the motorhome can be started and is free to roll. Hold the brake pedal down while in this position.



Image 36.2
Parking Brake

D (DRIVE)

This gearshift position is for normal driving. It allows the transmission to use all the gears which reduces fuel consumption and engine wear. As the motorhome picks up speed, the transmission automatically up-shifts.

If you need more power for passing or going uphill, push the accelerator pedal down and the transmission will shift to a lower gear. With the Tow/Haul indicator light **"ON"** (See Page 16), engine braking will occur when descending a grade.

DRIVING USING THE GEARSHIFT CONTINUED

WHEN TO USE 4 (FOURTH GEAR)

Use "4" (FOURTH) for improved traction on slippery roads and for additional engine braking.

WHEN TO USE 2 (SECOND GEAR)

Use "2" (SECOND) to start-up on slippery roads or to provide additional engine braking on downgrades.

NOTE: It is not recommended to exceed 55 miles per hour (88 km/h) in this gear.

WHEN TO USE 1 (LOW GEAR)

Use "1" (LOW) to drive up or down steep grades and to provide maximum engine braking.

NOTE: It is not recommended to exceed 30 miles per hour (48 km/h) in first gear.

WARNING: WHEN PARKED, IN ADDITION TO PLACING THE GEARSHIFT INTO "P" (PARK), YOU SHOULD ALWAYS SET THE PARKING BRAKE FULLY (Image 36.2)



ALWAYS TURN OFF THE IGNITION WHENEVER YOU LEAVE YOUR MOTORHOME. DO NOT LEAVE YOUR MOTORHOME UNATTENDED WHILE THE ENGINE IS RUNNING.

SAFE DRIVING TIPS

USE TRUCK /RV LANES AT TOLL BOOTHS

When traveling, use designated Truck/RV lanes at toll booths and bridges (Image 38.1).

Regular car lanes may not be wide enough or allow for the necessary height clearance for your motorhome.

Using the regular car lanes may lead to a collision causing property damage and may result in serious injury up to and including death.



Image 38.1
Use Truck/RV Designated Lanes at Toll Booths and Bridges

PASSING

Your side mirrors do not present a complete rear view when changing lanes. Be careful of your blind spots directly next to the driver and directly behind the motorhome. Due to the motorhomes weight and length, more time and distance is required to pass other vehicles.

Remember that your motorhome is much longer than a car, so give other drivers plenty of room before you pull back into a lane.

It is illegal to pass without signaling or to pass on a hill, curve or crosswalk.

NIGHT DRIVING

Use precaution when driving at night. A tired driver, especially one exceeding recommended speed and/or poor driving conditions can contribute to an accident.

PARKING AND BACKING UP

Do not depend solely on your mirrors when backing up. Always use a spotter - have someone outside of the motorhome to check for overhead clearance, side clearance and obstacles whenever possible. Allow for adequate mirror clearance.

Wheels should be turned toward the curb (if applicable), motorhome in **"P" (PARK)** and the parking brake applied when the motorhome is not going to be used.

SAFE DRIVING TIPS CONTINUED

BACKUP ALARM

Your motorhome is equipped with a back up alarm. This alarm will consist of a loud repetitive "beep-beep-beep" to warn people behind you that you are backing up. This tone is automatically generated whenever you put the gearshift lever in the reverse position.

BACKUP RADAR

Your motorhome is equipped with backup radar. This radar beeps inside the driver's cab whenever the motorhome nears an object. The radar beeps slowly when you are within six feet of an obstruction. It beeps quickly when you are within two feet of an obstruction. When you hear this quick beeping, stop backing up.

SPEED

- * Drive at a steady rate to save fuel. Stay centered in your driving lane.
- * Remember that you are driving a high profile motorhome and be prepared to encounter crosswinds.
- * Do not drive when tired. Full concentration is required when driving a motorhome.
- * Excessive speed is one of the most common causes of accidents.
- * With ideal weather conditions, your top speed should never exceed the posted speed limit.
- * Reduce speed in bad weather to help prevent accidents.
- * Observe and obey all posted speed limits as they can change suddenly.

OVERHEAD CLEARANCE

- * Always be aware of the dimensions of your motorhome.
- * Low hanging tree branches, canopies and signs at gas stations, restaurants and campgrounds will cause clearance problems.
- * Remember there are items located on the roof of your motorhome (i.e. air conditioner, solar panels and vents) that add substantially to the height of your motorhome.
- * Motorhomes are much taller than a conventional automobile so it must be kept in mind that at least 12 feet (3.7 meters) clearance is necessary.
- * Remember this when approaching gas station canopies, trees, overpasses, tunnels, bridges, toll booths, restaurants etc.
- * Always use truck lanes at tollbooths.

SAFE DRIVING TIPS CONTINUED

HILLS (UP AND DOWN DRIVING) (SEE TOW/HAUL PAGE 16)

When climbing hills, the transmission will automatically shift to lower gears. This decreases the strain on the engine and saves fuel. Do not press the gas pedal to the floor on steep grades.

This wastes fuel, overheats the engine and transmission and can cause permanent damage. Use just enough gas to maintain forward progress.

When descending hills, shift to a lower gear to reduce speed to a slower, safer level. Never use brakes as the sole method to control downhill speeds. Constant brake use can render their stopping power useless.

The lower gear level uses the engine to "brake the motorhome. Never ride your brakes down a hill. That will cause brake overheating and eventually failure.

TURNING

Make turns slowly and with caution.

Remember that motorhomes have a much wider turning radius than a car. Make wide turns and watch for side and overhead clearance. Overhead clearance is not always marked. Watch for the rear of the motorhome to swing out.

BRAKING AND STOPPING

DO NOT TAILGATE ALLOW AT LEAST FOUR SECONDS BETWEEN YOURSELF AND THE VEHICLE AHEAD ON NORMAL SURFACES.

When the vehicle ahead of you passes a certain point, such as a sign, count "one-thousand-one to one-thousand-four". This should take close to or a little more than four seconds. If you pass the same point before you finish counting, you are following too closely. For slippery surfaces, allow even more space.

Prolonged use of your brakes may result in overheating and possible brake fade requiring greater stopping distances.

Avoid sudden stops. Abrupt braking or speed changes on a slippery surface can cause skidding, loss of control and possible an accident.

SAFE DRIVING TIPS CONTINUED

ACCESS CONTROL DEVICES (TIRE SPIKES)

Be aware of access control devices (Image 41.1). These devices are made to punch holes in and ruin your tires. There may be signs to warn you of these.



Image 41.1
Access Control Device (Tire Spikes)

Damage caused by an access control device would not be covered under the tire manufacturers warranty.

INCLEMENT OR FREEZING WEATHER

Reduce speeds in windy or wet conditions. The size of motorhomes make them susceptible to crosswinds..

Braking distances are increased when driving on ice, snow or rain. Allow extra room between you and any vehicle ahead or besides you. In severe weather conditions, drive slowly with the headlights on. Avoid soft shoulders after a rain.



IF DRIVING IN SNOW, DO NOT USE SNOW CHAINS. IF SNOW CHAINS ARE REQUIRED, ERR ON THE SIDE OF CAUTION AND DO NOT DRIVE IF YOU DO NOT HAVE TO. SNOW CHAINS CAN CAUSE SEVERE DAMAGE TO YOUR MOTORHOME.

In the case of a **DUST STORM**, pull off of the road and turn off your lights.

In extremely **HOT CLIMATES**, use the air conditioner while driving on level roads and bring extra water.

In case of sub-freezing weather, special operating procedures are required to prevent freeze damage to your motorhome. (**Refer to "Winter Operations and Freeze Damage"**).

Freezing temperatures also have an effect on the propane system. In extremely cold weather, there may not be enough heat outside to vaporize the liquid propane (LP) in your propane tank. This can reduce or even stop the flow to your appliances.

SAFE DRIVING TIPS CONTINUED

STOPPING FOR FUEL AND LIQUID PROPANE (LP) GAS

Before refilling the motorhome fuel tank and/or Liquid Propane (LP) tank(s):

- Turn off all gas appliances and pilot lights (furnace, water heater, refrigerator and cooktop). Turn off the liquid propane (LP) gas system at the propane tank.
- Turn off the engine and generator.
- Use only the recommended fuel that Ford Motor company recommends for the chassis of your motorhome.



WARNING: NO DIESEL FUEL. IF DIESEL FUEL IS ADDED TO A UNLEADED GAS ENGINE, IT WILL CAUSE DAMAGE TO THE FUEL SYSTEM, THE ENGINE WILL NEED TO BE FLUSHED AND OTHER MAINTENANCE WILL NEED TO BE PERFORMED SO THAT THE MOTOHOME CAN BE RETURNED TO A NORMAL OPERATING STATE. THIS IS NOT COVERED UNDER THE FORD MOTOR COMPANY CHASSIS WARRANTY.

TIRES

Check tires and tire air pressure. The recommended pressure is 80PSI for "COLD" tires, (i.e. when the motorhome has been parked for at least an hour or has been driven for less than 3 miles.

WARNING: DO NOT UNDERINFLATE THE TIRES FOR A SMOOTHER RIDE.

This is a dangerous misconception. Under inflated tires can cause the tires to overheat very quickly causing treads to separate which can and probably lead to a blow out.

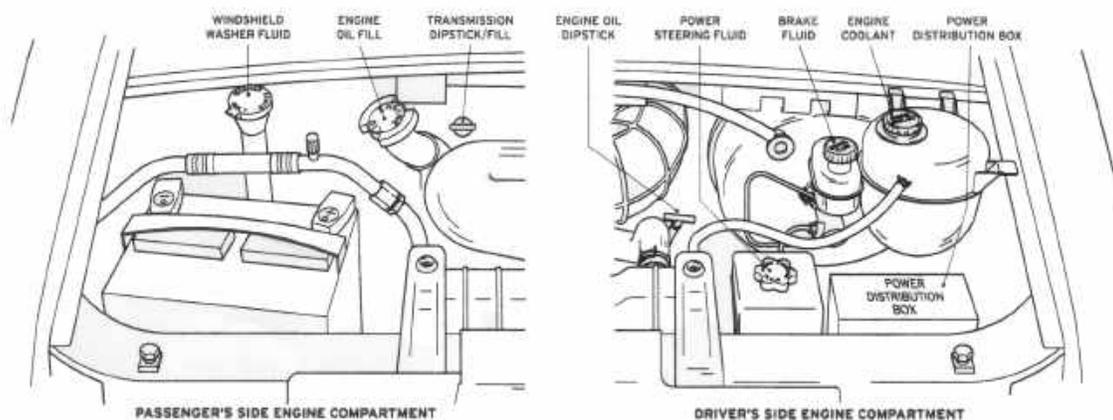


**WARNING
MAINTAIN PROPER
AIR PRESSURE
TIRE: LT225/75R166
PSI COLD: 80
(KPA:550)**

SAFE DRIVING TIPS CONTINUED

- Check oil, transmission fluid, engine coolant and windshield wiper fluid every time you fuel up. If oil changes or transmission fluid are required, use those recommended by Ford Motor company.
- Check generator oil level (with generator shut off) after approximately 6 hours of use. Follow manufacturers recommended service schedule.
- Check brake lights and turn signal operation.
- Adjust mirrors as needed.
- Do not remove radiator cap for any reason at any time. Serious injuries could occur. Always check coolant level visually at see-through coolant reservoir. Add coolant if necessary.
- Do not leave valuable in your motorhome when unattended. Always take them with you.
- When you stop for a period of time, check under the motorhome to see if there are any leaks from the chassis.
- Make sure brake fluid levels are between MIN and MAX lines for normal operating range. If the fluids are outside of the normal operating level, contact an authorized Ford Dealership for maintenance.
- **It is recommended that other than the addition of fuel and lubricants, a qualified service technician should perform all maintenance service.**
- If possible, always have someone outside the motorhome to guide you while you are parking or backing up.

ENGINE COMPARTMENT DIAGRAM





SAFETY EQUIPMENT

CHAPTER

4

SAFETY EQUIPMENT

SMOKE DETECTOR

Your motorhome comes equipped with a smoke detector alarm (Image 45.1) for your protection. The alarm is powered by a replaceable 9V battery.

If it needs to be replaced, it will begin to emit a chirping sound.



CAUTION: Do not disconnect the smoke alarm for any reason. If an alarm sounds while cooking, open windows and the motorhome doors to air the unit out.



Image 45.1
Smoke Detector

FIRE EXTINGUISHER

Your motorhome is equipped with a dry chemical fire extinguisher (Image 45.2). It is rated for type B fires (liquids and grease) and type C fires (electrical).

To use the fire extinguisher, pull the ring at the top, aim the nozzle at the base of the flames and press/squeeze the lever.

Cover the entire width of the base of the flames by sweeping the nozzle from side to side.

The fire extinguisher is located at the side of the step well by the coach entry door.



Image 45.2
Fire Extinguisher

SAFETY EQUIPMENT CONTINUED

CARBON MONOXIDE (CO)/LIQUID PROPANE (LP) GAS DETECTOR

The CO (Carbon Monoxide), LP (Liquid Propane) detector (Image 46.1) is located either above the rear bed or in the dinette area. The detector constantly monitors the air inside of the motorhome for the presence of CO and LP. If dangerous levels of either are present in the interior of the motorhome, the alarm will sound.

When you hear the alarm sound, you must stop the motorhome if driving, turn off the motor, the generator and shut the LP valve, open the door and exit the motorhome.

If you are not driving and you hear the alarm sound, open all the motorhome windows and the door to ventilate the interior of the motorhome. Make sure nothing is in front of or blocking the detector. After the coach airs out, reset the detector.

If the problem persists, contact the local emergency services to check the motorhome for carbon monoxide (CO) and or liquid propane (LP) levels and have the monitor serviced as soon as possible by a qualified service technician.

TROUBLESHOOTING THE CO/LP DETECTOR

A chirping sound will indicate a low coach battery. Run the chassis engine, motorhome generator or plug the motorhome into shore power to charge the coach batteries.

EMERGENCY EXIT

The Emergency Exit is located at the dining area (Image 46.2) and/or rear of the motorhome and is marked by the label shown. Open the window and exit the motorhome in case of an Emergency.

You may also exit the motorhome by the main entry door or the doors located in the driver's cab area.



Image 46.1
Carbon Monoxide/Liquid Propane
Detector Located In The Dinette Area



Image 46.2
Emergency Exit In Dinette Area

SAFETY EQUIPMENT CONTINUED

WINDOW OPERATION

The motorhome windows may be opened by pulling slightly on the latch to release the window and slide the glass **open**.

Don't forget to close the windows in case of rain.

When driving or operating the generator, you should keep the windows in the area of the generator and exhaust closed to prevent the entry of exhaust gases into the motorhome.



Image 47.1
Window Open/Close Latch



CAMPGROUND TIPS & VEHICLE SPECIFICATIONS

CHAPTER

5

CAMPGROUNDS

ARRIVING AT THE CAMPGROUNDS

Always try and arrive at your destination while there is still some daylight so you can register and be able to locate your campsite. Some campgrounds have obstructions and trees, which can damage the overhead or undercarriage of the motorhome.

If you arrive after the campground office is closed, you may still be able to check in after hours. It is helpful to call ahead so the campground doesn't give out your site and you may end up with a site that doesn't have full accommodations.

While you can still run your generator for electricity, you may be restricted from using your generator after dark.

ELECTRICAL HOOKUP

Ask for electrical hookup whenever possible. If your stay is for longer than one day, you should ask for full hookups (electric, water, and dump facility). This will make your stay more enjoyable, because you will be charging your coach battery(ies), while also running your appliances without using the 12V coach battery(ies). You will not worry about your appliances not functioning, due to having drained your 12V coach battery(ies).

Connecting your motorhome to the campsite electric supply is simple and easy. Just remove the motorhome shore line from the receptacle inside the shore line compartment (Image 49.1) and plug it into the campsite 120V receptacle (Image 49.2)

If an adapter is needed due to a larger or smaller power supply, those adapters can be purchased from the campgrounds or most RV dealerships.



Image 49.1
Permanent Mounted 30AMP RV Power Cord



Image 49.2
30AMP Power Receptacle Box

CAMPGROUNDS CONTINUED

WATER HOOK UP

Remove your fresh water hose and connect to the motorhome and the campsite water faucet. Caution: some campground water supplies are on wells and the water may not be fit to drink. It is recommended that bottled water or a filtration system be used for safe drinking water.

NOTE: Some campgrounds have very high water pressure, which may cause a leak in your water system. If you encounter very high water pressure, a 30-50LB. water pressure regulator is recommended to prevent your water lines from rupturing. These regulators can be purchased at most campgrounds or RV dealerships parts departments.



WARNING: IF THE OVERNIGHT TEMPERATURE IS EXPECTED TO GO BELOW FREEZING FOR AN EXTENDED PERIOD OF TIME, YOU SHOULD WINTERIZE YOUR MOTORHOME. PLEASE FOLLOW THE INSTRUCTIONS IN THE FRESH WATER SYSTEM (WINTER OPERATION AND FREEZE DAMAGE) SECTION OF THIS OWNERS MANUAL.

SEWER HOOK UP

Remove the sewer hose from its storage compartment (Image 50.1) and connect the motorhome sewer drain outlet. (See "Dumping the Holding Tanks"). Keep the two waste dump valves closed even while connected to the campground sewer system.

Monitor the tank levels and empty the tanks when the panel reads 3/4 or above. After dumping, close the valves and fill the toilet 1/4 full. Add toilet chemicals and flush so waste can dissolve in the water.



Image 50.1
Sewer Hose and Gate Valves

CAUTION: If you are camping and are able to leave your sewer hose hooked up, please keep the gate valves closed. Open the valves only for dumping and then promptly close them again.



Dump only after the tanks are 3/4 full so there will be ample pressure. If you leave the valves open, solid waste will settle and your waste tank will become clogged.

CAMPGROUND ETIQUETTE

Common sense rules of etiquette prevail when you check into any campground, public or commercial. Whether you plan to stay for one night or an extended stay, you are joining a community and you are expected to be a good neighbor and comply with campground rules.

You will be expected to refrain from excessive noise, to respect the environment around you, to clean up any litter and to never run the generator after posted allowed hours.

If you arrive at a campground late in the afternoon or at night, keep your lights dim and make as little noise as possible. It is a good idea to stock up on toilet chemicals and RV toilet paper while you are at the campground since these items will not be available to you at a regular supermarket. Wal-Mart may be a second option if the campground office is closed and you are low on these supplies.

CAMPGROUND VEHICLE SECURITY

Do not leave valuables in the motorhome while you are away. Take valuables with you. Secure all windows. Close the side and rear curtains as well as the front privacy curtains.

OVERNIGHTING AT PRIMITIVE SITES

If your campsite does not have electrical, water or sewer hookups, ask the campground office where their dump station and water fill are located.

1. If not hooked up to electricity, be sure the engine fuel tank has enough fuel to run the generator. **(The generator will use about 1 gallon of fuel per hour of operation and will shut down when the level in your fuel tank drops below 1/4 full).**
2. Be sure that the fresh water tank is full.
3. Light the water heater only when you need hot water. Turn off after use.
4. Use the generator for all electrical operations inside the coach. **THIS WILL ENSURE THAT YOUR COACH BATTERY(IES) REMAIN FULLY CHARGED.**
IMPORTANT: Using the furnace and your interior lights will quickly drain your coach battery(ies).
5. Check that the refrigerator pilot light is still lit. If necessary, relight the pilot light per the instructions in the refrigerator section of this guide.

CAMPGROUND ETIQUETTE CONTINUED

DEPARTING THE CAMPGROUND

1. Disconnect the shore line from the campsite receptacle, plug the end of the electric cord back into the 120-VOLT receptacle in the motorhome shoreline compartment. If you used any adapters, store those in the shoreline compartment as well.
2. Close both dump valves. Disconnect the sewer hose from the motorhome. Lift the hose to drain any excess liquid from the hose.
3. Turn off the water spigot and disconnect the fresh water hose from the motorhome.
4. If you need to add fresh water to the motorhomes fresh water tank, remove the fresh water fill cap and place the hose end in the fill hole. Only turn the faucet partway as the tank has to vent to fill. Complete the filling of the fresh water tank.
5. Stow the sewer hose back in its compartment.
6. Turn off the water and disconnect the fresh water hose from the campground spigot, allowing the excess water to drain off before stowing the hose in its compartment.
7. Secure all compartment doors before departing the campsite.
8. Turn off the water heater. We advise this because the water heater is a rapid recovery system.
9. Secure the refrigerator door and check to ensure that your refrigerator is operating on liquid propane (LP) gas while you are driving.
10. Close the roof vent(s).
11. Make sure all loose articles inside the motorhome are secured and stowed away.
12. check all tires. If any tires are low inflate them as soon as possible.
13. Adjust the side mirrors if necessary.
14. Always have someone outside the vehicle guide you while you are parking or backing up.
15. Latch and deadbolt the side entry door.
16. Before driving away, make sure all passengers are buckled up with seat belts provided.

TYPICAL MOTORHOME SPECIFICATIONS

VEHICLE TYPE	Compact	Standard	Large
CLASS	19TM	25TM	30TM
ENGINE	V-8	V-8	V-10
TRANSMISSION	Auto	Auto	Auto
POWER BRAKES	Yes	Yes	Yes
POWER STEERING	Yes	Yes	Yes
DASH AIR CONDITIONING	Yes	Yes	Yes
CRUISE CONTROL	Yes	Yes	Yes
DUAL REAR TIRES	No	Yes	Yes
STEREO SOUND SYSTEM	Yes	Yes	Yes
REFRIGERATOR	Yes	Yes	Yes
FURNACE	Yes	Yes	Yes
COOKTOP BURNERS	2	3	3
MICROWAVE	Yes	Yes	Yes
ROOF AIR CONDITIONER	Yes	Yes	Yes
GENERATOR	Yes	Yes	Yes
SHOWER	Yes	Yes	Yes
FLUSH TOILET	Yes	Yes	Yes

Capacities (GAL./LITER)

FUEL (UNLEADED)	40/151	55/208	55/208
WATER HEATER	06/22	06/22	06/22
FRESH WATER	20/76	40/151	40/151
GRAY WATER	18/68	35/132	35/132
SEWAGE (BLACK WATER)	17/64	30/114	30/114
L.P. GAS (PROPANE)	12/45	12/45	12/45

Dimensions (ft./meters)

LENGTH (TO NEAREST FT)	20'/6.1m	25'/7.6m	30'/9.1m
WIDTH (INC. MIRRORS)	10'/3m	10'/3m	10'/3m
OVERHEAD CLEARANCE	12'/3.7m	12'/3.7m	12'/3.7m
WEIGHT (GVWR - LBS/KG)	9,600/4,354	11,500/5,216	14,050/6,373

MONITOR PANEL

These panels allow you to conveniently check the approximate levels of such items as the fresh water tank, black tank (toilet waste) and liquid propane (LP) gas tank (Image 54.1).

You can also check the condition of you auxiliary coach battery(ies), turn on the water pump, water heater and start or stop the generator.



Image 54.1
Motorhome Monitor Panel

CHECKING TANK LEVELS

To check the amount of water available in the fresh water tank, push the levels test switch and hold. For example if the tank is 2/3 full, the 1/3 and 2/3 lights will illuminate on the panel. This will apply to all tank levels on the panel. **(See the following table):**

LEVEL	LIGHTS
1/3	1/3
2/3	1/3 and 2/3
FULL	1/3, 2/3 and F

CHECKING BATTERY CONDITION

The battery condition switch tells you the approximately what condition your coach battery(ies) charge is in. To check the battery(ies) condition, you must first have the shore power disconnected and the generator and engine must be off as well.

Press the levels test switch and the lights on the panel marked 10V, 11V or 12V will light up. If the 12V light is not on, you should charge your coach battery(ies) by plugging into shore power, running the generator or the motorhome engine.

MONITOR PANEL CONTINUED

CONTROL SWITCHES ON THE MONITOR PANEL

On the monitor panel (Image 54.1) you will find the generator start/stop switch (if equipped), the water heater switch and the water pump switch.

The **GENERATOR SWITCH** turns the generator on and off. For more information, refer to the generator section of this manual.

The **WATER HEATER SWITCH** turns on the water heater for hot water. It also has an indicator light to let you know if it is on or not. Refer to the water heater section for more instructions on water heater usage.

The **WATER PUMP SWITCH** has an indicator light to let you know if it is on or not.

HELPFUL HINTS

The monitor panel is a very useful convenience, but if a malfunction should occur, below are alternative ways to check most of your levels.

The liquid propane (LP) gas tank has a secondary gauge mounted on the tank. Look there for the most accurate tank level.

The fresh water tank will be located either under the rear facing dinette seat or under the rear bed, depending on which model you own. It is a translucent white and you can see the water amount in your tank.

You can determine the level in the black tank (toilet waste) by looking down the toilet to see how full the tank is. On occasion, the toilet waste gauge on your panel may read incorrectly. This is because the sensor probes mounted on the inside of the tank sometimes get coated with particles, causing faulty readings on the panel.

To prevent this, always flush with plenty of fresh water when using the toilet. Never pour grease or oil down the toilet. Always use the easily dissolved special RV toilet tissue and clean with dry or liquid enzyme RV toilet chemicals. If you get faulty readings, you may correct this in the following way. Drain the tank, then fill with water and 1/2 cup of dish-washing soap. Drive your motorhome for a while. The sloshing water will usually clean the probes.

The level in the gray tank (sink and shower drain water) cannot easily be determined. However, if you have water coming up in the shower it is an indication that your gray tank is full.



THE ELECTRICAL SYSTEM

CHAPTER

6

ELECTRICAL SYSTEM



NOTICE: All motorhomes are equipped with two separate electrical systems. A **12-VOLT DC** system (direct current from a battery source and a **120-VOLT AC** system (alternating current from a power outlet or an on-board generator).

12-VOLT SYSTEM

Your motorhome has two 12V coach batteries; one in the engine compartment and the other in a compartment on the drivers side (Image 57.1). The one in the drivers side compartment is also called the auxiliary battery.

The engine compartment battery (located under the hood) is charged by the alternator while driving the motorhome. It supplies power to the engine ignition switch, dash controls switches and all exterior lighting of the motorhome.



Image 57.1
Coach Battery Located in Drivers Side
Compartment

The auxiliary or coach battery (Image 57.1) operates the furnace, water pump, liquid propane (LP) gas detector, CO detector, monitor panel and all interior lighting. It also supplies power to the electronic controls for the water heater and the refrigerator.

The auxiliary or coach battery(ies) are charged in two ways:

- From the vehicle alternator when the engine is running for approximately 30 minutes (this is the most efficient way).
- From the 12-Volt system through the power converter (at a lower charge rate using the shoreline or generator, can take up to 6-8 hours).

ELECTRICAL SYSTEM CONTINUED

12-VOLT SYSTEM CONTINUED

TROUBLESHOOTING THE 12-VOLT SYSTEM

1. The coach battery may be low (this can be checked at the monitor panel). You may charge your coach battery by simply running the chassis engine. If the coach battery won't hold a charge, contact a qualified service technician to test the battery and charging system.
2. A fuse may be bad. Replacement fuses may be purchased at auto parts stores, hardware stores and some service stations.
3. The 40AMP circuit breaker may need to cool down or be reset. Depending on the model, you must push the reset button. On other models the breaker resets automatically (no reset button). The reset button is often on the back side of the breaker box and can be felt but not seen.
4. If the breaker fails and will not reset, there is an electrical overload or other problem and you must contact a qualified service technician to evaluate and repair.
5. A rotten egg odor in the coach indicates sulfur fumes which are probably coming from the coach battery because of over-charging or a short. Open all windows in the motorhome and contact an authorized service technician to arrange for service and repair.

ELECTRICAL SYSTEM CONTINUED

120-VOLT SYSTEM

By connecting the motorhome's power cord to a **120-VOLT** outside power source or using the on-board generator, you will be able to run the roof air conditioner, microwave and the **120-VOLT** electrical outlets in the motorhome.

The **120-VOLT** outlets in the bathroom and kitchen are protected by Ground Fault Circuit Interrupter (GFCI) (Image 59.1). This device is intended to protect you against the hazards of electrical shock when using electrical appliances..



Image 59.1
Motorhome GFCI Outlet

TROUBLESHOOTING THE 120-VOLT SYSTEM

1. The shore line must be plugged into either an external **120-VOLT** receptacle or the generator receptacle located in the shoreline storage compartment (Image 59.2). If using an external **120-VOLT** receptacle, make sure the breaker for the receptacle is turned on. If using the generator receptacle, you must also have the generator running.
2. The circuit breakers in the power converter box must be in the "ON" position.
3. The 30AMP breaker on the generator must be in the "ON" position.

NOTICE: If the power is on and there is no current to the outlets, push the "**RESET**" button (at the center of the GFCI outlet.)



When using the on-board generator, the **120-VOLT** shore line must be plugged into the receptacle in the compartment (Image 59.2).

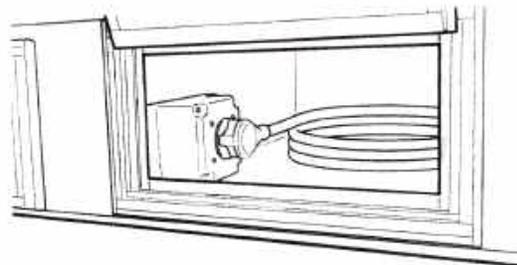
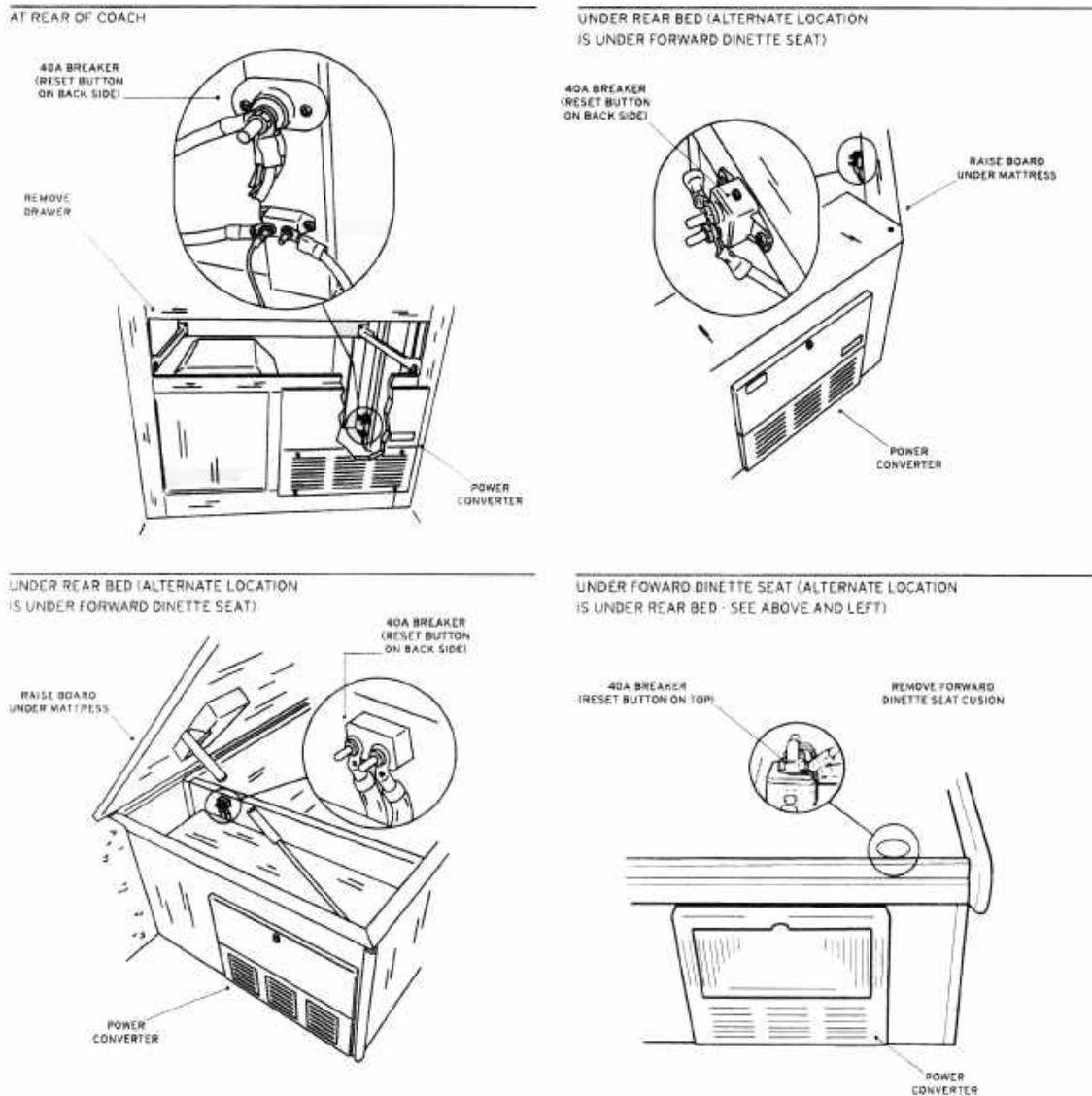


Image 59.2
120-VOLT Shoreline Storage Receptacle

ELECTRICAL SYSTEM CONTINUED

40AMP RESET LOCATIONS



THE POWER CONVERTER

Your motorhome operates on two different electrical systems: a **12-VOLT DC** (direct current) system and a **120-VOLT AC** (alternating current) power. A power converter (Image 61.1 and 61.2) is used to transform **120-VOLT AC** power to **12-VOLT DC** power when the motorhome is plugged into a campground receptacle or plugged into the shoreline receptacle with the generator on.

The converter supplies **12-VOLT DC** power to interior lights, fans and the water pump. The **120-VOLT AC** provides household current to the wall outlets, roof air conditioner and the microwave.

ELECTRICAL SYSTEM CONTINUED

THE POWER CONVERTER CONTINUED

Converters incorporate a series of automotive fuses and circuit breakers.

The **120-VOLT AC** system has a series of circuit breakers. If one of these should trip, move the switch all the way to the **"OFF"** position until you hear a "click", then press back to the **"ON"** position as indicated at the breaker itself.

If repeated attempts do not fix the problem, contact an authorized service technician to check the system and make necessary repairs.

Never store flammable material near the converter. Converters create a great amount of heat and require a lot of ventilation. Keep the area around the converter clear for proper ventilation.

If the converter overheats, it will temporarily shutdown. The converter has a thermostatically controlled cooling fan which will cycle **"ON"** and **"OFF"**. This is to keep the converter cooled when needed.

LOCATION

Refer to the diagram on page 60 for the possible location of your power converter. The location will vary depending on the model of your motorhome.



WARNING: IF A FUSE BLOWS, IT MUST BE REPLACED WITH ONE OF THE SAME AMPERAGE. REPLACEMENT WITH A LARGER AMPERAGE FUSE CAN CAUSE SEVERE DAMAGE TO THE 12-VOLT DC SYSTEM.



Image 61.1
Power Converter Box with Lid Closed



Image 61.2
Power Converter Box with Lid Open
This Shows the Breakers On the Left and the Fuses
On the Right.

ELECTRICAL SYSTEM CONTINUED

THE GENERATOR

The generator is designed to provide **120-VOLT** electrical power if outside power is not available or when you are traveling in the motorhome. This feature will allow you to enjoy all the comforts of the motorhome while traveling or roughing it in the woods.

The generator will consume about one gallon of fuel for each hour of operation. The fuel supply is shared with the motorhome engine and is designed to shut off at 1/4 tank capacity or less.

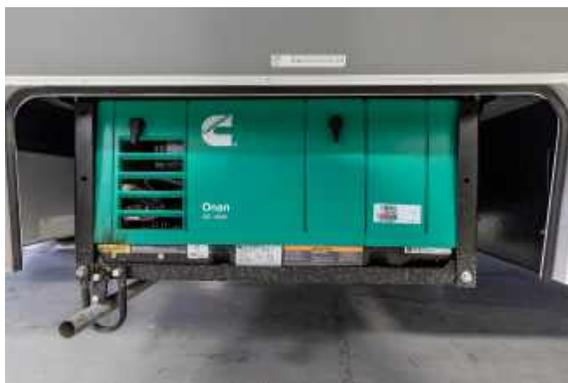


Image 62.1
On-board Generator Compartment Located on
Drivers Side of Motorhome

If you will be camping without the convenience of **120-VOLT** power connection or using the generator while traveling, you will need to plan ahead and refill your fuel tank to allow for uninterrupted use of the generator.

NOTE: The **120-VOLT** shore line cord must be plugged into the receptacle in the cord storage compartment to allow the generator to provide power to any of the motorhome systems. (See page 59).

THE GENERATOR IS DESIGNED TO SUPPLY POWER TO THE FOLLOWING APPLIANCES:

- Roof mounted air conditioner.
- Microwave oven.
- Refrigerator (On AC mode).
- It will also recharge the auxiliary battery.

GENERATOR PRESTART CHECKS:

- Check oil level daily or after every six hours of operation.
- Check motorhome chassis fuel level for adequate supply (minimum 1/4 of a tank).

ELECTRICAL SYSTEM CONTINUED

THE GENERATOR CONTINUED

STARTING THE GENERATOR

- When starting and stopping the generator (Image 63.1), you must turn off all electrical appliances, roof mounted air conditioner and microwave. Also discontinue use of any outlets.
- The generator start/stop button is located on the monitor panel by the coach entry door (Image 63.2). To start the generator push and hold the **START/STOP** button for a period of ten seconds. If the generator does not start, wait for approximately thirty seconds and repeat. "See troubleshooting on if the generator does not start".

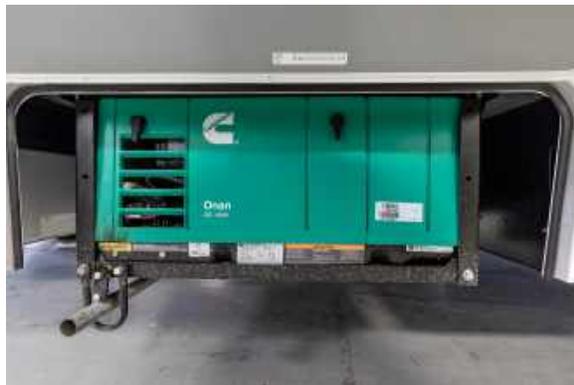


Image 63.1
Generator Located On Drivers Side of Motorhome

STOPPING THE GENERATOR

- Before stopping, turn off the air conditioner and any other **342/XQNV** appliances in operation. Allow generator to run for two minutes to allow the engine to cool down.
- To stop the generator, press and hold the **"STOP"** or lower end of the start/stop button until the generator stops completely.



Image 63.2
Generator Start/Stop Button On Control Panel

ELECTRICAL SYSTEM CONTINUED

THE GENERATOR CONTINUED

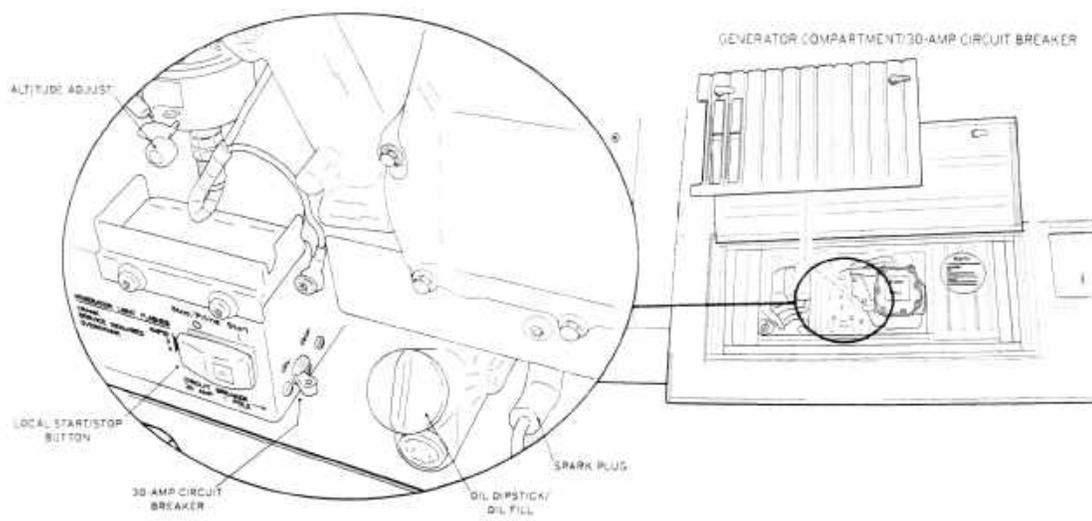
RESTARTING A STALLED GENERATOR

- Try to determine why the generator shut down. See Troubleshooting the Generator, (page 65) and follow the instructions listed.
- **TURN OFF ALL ELECTRICAL APPLIANCES AND ATTEMPT TO RESTART THE GENERATOR.**
- After the generator starts turn the appliances back on, one at a time until you are fully operational again.

RESETTING CIRCUIT BREAKERS

If a breaker on the main power distribution box trips or the breaker on the generator does, you may need to reduce the number of appliances you are attempting to simultaneously operate.

To reset the breaker in the converter, press breaker to the **"OFF"** position until you hear a click. Then press the breaker back to the **"ON"** position. Try turning off the roof air conditioner when operating the microwave oven. This will reduce the load on the generator. After you are finished with the microwave, turn the air conditioner back on.



ELECTRICAL SYSTEM CONTINUED

TROUBLESHOOTING THE GENERATOR

FAILS TO CRANK	1. Low Battery	Start chassis engine then start generator
	2. Bad battery connection	Clean and tighten all battery and cable connectons
	Blown fuse	Replace fuse on control panel
CRANKS SLOWLY	1. Low battery	Start chassis engine then start generator
	2. Bad battery connection	Clean and tighten all battery and cable connectons
	3. Load connected	Disconnect load before starting
CRANKS BUT WON'T START	1. Fuel below 1/4 in tank	Add fuel
	2. Low oil level	Add oil if necessary
	3. Plugged fuel filter, bad fuel or fouled spark plug	Contact an authorized service technician
STOPS WHEN DRIVING AROUND CORNER	1. Low on fuel	Add fuel
	2. Low oil level	Add oil if necessary
	3. Excess oil	Reduce generator oil level
UNIT STARTS AND RUNS, THEN STOPS WHEN SWITCH IS RELEASED	1. Low fluid levels	Check and bring all fluid levels up to appropriate level
	2. Possible overheating	Checked for blocked air flow and that the generator cover is properly closed
	3. Other function problem	Contact an authorized service technician
CIRCUIT BREAKER TRIPS	Overloaded circuit	Turn off some of the electrical load and reset the circuit breaker
GENERATOR RUNS THEN SURGES	Started with load on	Turn off all appliances and restart generator



THE 120-VOLT APPLIANCES

CHAPTER

7

THE MICROWAVE OVEN

ABOUT THE MICROWAVE

The microwave is manufactured for motorhome use only. Altitude and the kind of cookware used can affect cooking times.

NOTE: The microwave operates on **120-VOLT** only. To use the microwave you must have the shoreline plugged into either a campground receptacle or the generator outlet.

If you are plugged into the generator outlet, the generator must be running in order for there to be **120-VOLT AC**.

Like with all microwaves, there are certain things that should not be put into it.

NOT RECOMMENDED:

- Glass jars - they may shatter.
- Paper bags - they create a fire hazard - except popcorn bags intended for the microwave.
- Styrofoam plates or cups - they may melt.
- Plastic containers - they may melt.
- Metal utensils and wire ties for bread bags.
- Never use dishes with metallic rims.
- Aluminum foil.



Image 67.1
Motorhome Microwave - Model May Vary
Depending On Motorhome Model

RECOMMENDED:

- Glass or ceramic plates and bowls.
- Microwave browning dishes.
- Microwave plastic wrap, wax paper, paper towels and napkins.
- paper plates and cups.

THE MICROWAVE OVEN CONTINUED

TROUBLESHOOTING THE MICROWAVE

PROBLEM	POSSIBLE CAUSES	CHECKS/SOLUTIONS
Oven inoperative and no display	No 120-VOLT power to microwave	<ol style="list-style-type: none">1. If roof air is working, check breakers in converter.2. If roof air is inoperative, troubleshoot the 120-VOLT system for the motorhome.3. Microwave may not be plugged in. (Check plug in cabinet next to microwave).
Display is lit but microwave does not heat food.	Microwave may be broken.	Contact an authorized service technician for diagnosis and repairs.
Sparks or arcing occurs when microwave is turned on.	Metal object in microwave.	Check for metal or foil objects inside the microwave.

ROOF AIR CONDITIONER

HOW IT OPERATES

Cool air is generated by recycling the air from inside the motorhome (return air), sending it through the evaporator coils and pushing it back into the motorhome (discharge air) through the air grills (Image 69.1).

NOTE: The roof air conditioner (Image 69.1) operates on **120-VOLT** power only. To use **120-VOLT AC**, you must have the shore line plugged into either a campground receptacle or the generator outlet.



Image 69.1
Roof Air Conditioner with Air Vents Highlighted
By Blue Arrows

The generator outlet is located in the shore line compartment on the drivers side of the motorhome. If you are plugged into the generator, the generator must be running in order for there to be **120-VOLT AC** power.

NOTE: Before turning off the generator (or unplugging the shore line), turn off the roof air conditioner.

The ability of the air conditioner to cool down or maintain a desired temperature depends upon the heat gain of the motorhome, the size of the motorhome, the amount of windows, exposure to the sunlight and the number of people inside of the motorhome.

AS A RULE, THE AIR WILL BE COOLED 15 TO 20 DEGREES, DEPENDING ON THE OUTSIDE TEMPERATURE AND HUMIDITY.

It is not uncommon to see water dripping from the roof while using the air conditioner in more humid temperatures. Parking the motorhome in shaded areas, keeping curtains and blinds drawn and avoiding the use of heat producing appliances will help reduce the heat gain.

ROOF AIR CONDITIONER CONTINUED

HOW IT OPERATES CONTINUED

When the outdoor temperatures drop in the evening to below 75 degrees farenheit, the temperature control knob should be set midway between **WARMER** and **COOLER**. Otherwise the evaporator coil may become iced up and sop cooling.

Should icing up occur, it is necessary to turn the air conditioner off for at least 45 minutes to clear the coil of the ice. Alternatively, you may turn the selector knob to the **HI FAN** position until increased airflow is observed.

When the air conditioner is in operation, its compressor circulates refrigerant under high pressure. Once it is turned off, it takes three to four minutes to equalize the pressure. Therefore once it is turned off it is important to leave it off for three to four minutes before starting it up again. "Short cycling" the compressor will sometimes trip the circuit breaker.

AIR CONDITIONER START UP

1. From the ceiling assembly, turn the selector switch to the **LOW COOL** or **HIGH COOL** position.
2. Rotate the thermostat (temperature control) to the position most comfortable for you.
3. If you feel a reduced amount of air, check the air filters highlighted in Image 69.1 for dust or debris.

TROUBLESHOOTING THE ROOF AIR CONDITIONER

PROBLEM	POSSIBLE CAUSES	CHECKS/SOLUTIONS
A/C doesn't run.	No 120-VOLT power to roof A/C	1. If microwave is working, check the A/C breaker in converter. 2. If the microwave is inoperative, troubleshoot the 120-VOLT system for the motorhome.
Not cooling or low cooling.	Evaporator coils are iced up. Filter is clogged.	Run air conditoner on FAN High for 45 minutes or turn air conditioner off for 45 minutes. Remove filters and clean. (See page 69)



THE LIQUID PROPANE (LP) GAS APPLIANCES

CHAPTER

8

LIQUID PROPANE (LP) GAS APPLIANCES

LIQUID PROPANE (LP) GAS SYSTEM

Your motorhome is equipped with a liquid propane (LP) gas system (Image 72.1) designed to provide fuel to the following appliances: refrigerator, range, furnace and hot water heater.

The propane tank (Image 72.2) is located outside of the motorhome. The main shutoff valve, also called the service valve is located on the tank and will need to be opened to operate your gas appliances.

The liquid propane (LP) gas system is designed to allow you to operate the motorhome with the propane tank turned on. This allows the refrigerator to cool as you travel.

NOTE: Close (twist clockwise) the service valve at the liquid propane (LP) gas tank (Image 72.2) before you begin refueling the motorhome liquid propane (LP) gas tank.

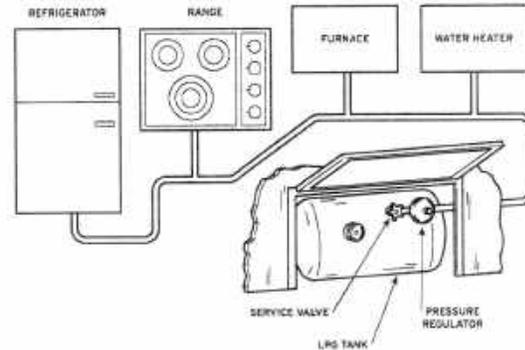


Image 72.1
Liquid Propane (LP) Gas Tank to Appliances
Diagram



Image 72.2
Liquid Propane (LP) Gas Tank in Drivers Side
Compartment



CAUTION: All gas appliances (Refrigerator, Range, Furnace and Water Heater) must be turned "OFF" before you begin to refuel the motorhome chassis with unleaded fuel as well as the liquid propane (LP) gas system.

Cold weather operation; in extremely cold weather there may not be enough heat outside to vaporize the liquid propane (LP) gas in your propane tank. This can reduce or even stop the flow of liquid propane (LP) gas to your appliances.

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

LIQUID PROPANE (LP) GAS SYSTEM CONTINUED

IF YOU SMELL GAS:

1. Extinguish all open flames, pilot lights and all smoking materials.
2. Do not touch electrical switches.
3. Shut off the (LP) gas supply at the service valve located on the (LP) gas tank.
4. Open doors and any other ventilating openings.
5. Leave the area until the odor clears.
6. Have the gas system checked by an authorized service technician to determine the source of the leak and to have corrected.

LIQUID PROPANE (LP) GAS/CO LEAK DETECTOR

The liquid propane (LP) gas/CO detector (Image 73.1) is an electronic device designed to detect and alert you of a possible liquid propane (LP) gas and or carbon monoxide (CO) leak in the motorhome.

The detector immediately warns you with a fast beeping sound. When you hear this sound, turn the liquid propane system off at the service valve located on the liquid propane (LP) gas tank.



Image 73.1
Liquid Propane (LP) Gas/CO Detector

It is important to note that the detector is sensitive to more than just liquid propane (LP) gas and carbon monoxide. Other combustibles that may be detected include alcohol, colognes, perfumes and most cleaning fluids.

The detector is located near the floor of the motorhome in either the entry step, kitchen or dinette area. The detector is powered by the coach battery(ies). When the battery voltage falls below 10.5V, the liquid propane (LP) gas/carbon monoxide (CO) detector will begin to chirp at a slow pace. If this happens, you will need to start the generator or the engine to allow the coach battery(ies) to recharge.

For startup or restart conditions, light one of the burners and allow it to burn for approximately thirty seconds or until the flame is burning evenly. If the stove will not light, see Troubleshooting the liquid propane (LP) gas system.

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

TROUBLESHOOTING THE LIQUID PROPANE (LP) GAS SYSTEM

PROBLEM	POSSIBLE CAUSES	CHECKS/SOLUTIONS
No Liquid Propane (LP) Gas to LP Gas Appliances	<ol style="list-style-type: none"> 1. Valve off at tank. 2. Low coach battery. 3. Out of liquid propane (LP) gas. 4. Sub-zero temp. Tank too cold to vaporize liquid propane (LP) gas. 	<ol style="list-style-type: none"> 1. Fully open the valve at the liquid propane (LP) gas tank by turning counterclockwise. 2. Run engine or generator to charge coach battery(ies). 3. Refill liquid propane (LP) gas tank. 4. Wait for temperature to rise or move to a warmer climate.
Liquid propane (LP) gas flowing but appliances won't light.	<ol style="list-style-type: none"> 1. Air in lines. 	<ol style="list-style-type: none"> 1. Expel air from lines and refer to troubleshooting guides for refrigerator, furnace or water heater.
Liquid propane (LP) gas/carbon monoxide (CO) detector alarm activated (rapid and loud alarm) or will not reset.	<ol style="list-style-type: none"> 1. Combustable fumes in area of detector. 	<ol style="list-style-type: none"> 1. Air out the motorhome and try to reset the detector. If the detector will not reset, turn off the main liquid propane (LP) gas valve at the tank and call the local emergency response teams to check out the levels of liquid propane (LP) and/or carbon monoxide (CO) in the motorhome. Have liquid propane (LP) gas system checked and repaired by authorized service technician. 2. Make sure nothing is blocking the detector. 3. If aerosols have been sprayed, this can set off the detector.
Detector is chirping (slowly)	<ol style="list-style-type: none"> 1. Low coach battery 	<ol style="list-style-type: none"> 1. Run engine or generator to charge coach battery(ies).

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

THE REFRIGERATOR

Motorhome refrigerators (Image 75.1) are completely different from the ones you have inside your home. A motorhome refrigerator is an absorption refrigerator. Rather than applying direct cold, heat is drawn out from the refrigerator. There are no moving parts, the whole process is based on chemistry and physics, rather than mechanics. While effective, there are limitations inherent to the system.

The average cooling temperature of a motorhome refrigerator is about 60° Fahrenheit (15° Celsius) and it can vary depending on the outside temperature.

Avoid opening the refrigerator for extended periods of time as this will warm the refrigerator and its contents. This can cause a cooling down period of up to 6 hours to get the temperature back down to 60°.

Each prolonged opening of the refrigerator door(s) can increase the temperature of the refrigerator by up to 10° Fahrenheit (6° Celsius).

Here are some helpful hints to help keep your perishable food items cold:

1. Pre-cool your food if possible. This gives the unit a break and keeps the temperatures down inside the refrigerator.
2. Proper refrigeration requires air circulation within the refrigerator. It is essential that the shelves are not covered with paper or large food items as this will restrict airflow.
3. Park your motorhome on as much level ground as possible. The refrigerator will not operate as efficiently if the motorhome is not level.
4. Don't open the door(s) more than necessary.



Image 75.1
Motorhome Refrigerator With Both Doors Opened



Image 75.2
Refrigerator Control Panel Featured

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

THE REFRIGERATOR CONTINUED

OPERATING INSTRUCTIONS

A 12V supply must be available for the electronic control of the refrigerator to function. The power is supplied by the coach battery(ies).

START UP: Push "ON/OFF" button (Image 75.2) so button is pressed in the "ON" position.

AUTO: In the "OUT" position, the refrigerator will automatically switch from liquid propane (LP) gas to electric as needed.

GAS: With the button in the "IN" position, the refrigerator will run on liquid propane (LP) gas only.

TEMPERATURE CONTROL: Open the refrigerator door, you will see grated panels in the back. On the right side of the panels you will see a slide bar (Image 76.1). Slide "UP" for a "COOLER" temperature and slide "DOWN" for a "WARMER" temperature.

NOTE: On some models, you can select "TEMP SET" on the refrigerator control panel for some models.

SHUT DOWN: Push the "ON/OFF" button for two seconds.

The refrigerators in some motorhomes have a resettable thermostat. To see if your refrigerator model has this feature, please refer to the manufacturers appliance manual or visit the corporate website for literature regarding your refrigerator model.



Image 76.1
Refrigerator Warmer/Cooler Slide Control

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

THE REFRIGERATOR CONTINUED

TROUBLESHOOTING THE REFRIGERATOR - LIQUID PROPANE (LP) GAS

If you are experiencing any problems with the refrigerator while using the liquid propane (LP) gas mode, please check the following items:

- The **"ON"** button must be in the **"IN"** position.
- The **"AUTO/MANUAL"** button must be in the **"OUT"** position.
- The liquid propae (LP) gas tank must have liquid propane (LP) gas and the valve must be open.
- The liquid propane (LP) gas detector must be **"ON"** and operational.
- The 12V supply must be operational and charged. (NOTE: this can be checked at the monitor panel).
- The motorhome should be parked on the best level ground as possible.
- There may be air in the liquid propane (LP) gas line. Cycle the refrigerator **"ON"** and **"OFF"** several times, waiting 30 seconds between cycles.

NOTE: A refrigerator can take up to six hours to cool down after initial start up or with extended periods of being opened and closed.

TROUBLESHOOTING THE REFRIGERATOR - 120-V

If you are experiencing any problems with the refrigerator while using 120-V, please check the following items:

- The **"ON"** button must be in the **"IN"** position.
- The **"AUTO/MANUAL"** button must be in the **"IN"** position.
- Is the microwave clock **"ON"**? If so then the 120-V system is working and you should check the breaker for the refrigerator in the converter.
- If the microwave clock is not on, then you should troubleshoot the 120-V system.
- The motorhome should be parked on the best level ground as possible.

NOTE: A refrigerator can take up to six hours to cool down after initial start up or with extended periods of being opened and closed.

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

STOVETOP (RANGE)

HOW IT OPERATES:

The stove-top burners (Image 78.1) are operated on liquid propane (LP) gas. The operation is the same as a gas stove in a house, but unlike a home the amount of oxygen is limited in a motorhome due to the size and construction.

Therefore, always have sufficient ventilation when using the stove. There is an exhaust fan located in the hood (Image 78.2) above the stove-top that may be used during cooking for extra ventilation.

USING THE STOVE-TOP

Your motorhomes stove-top has an igniter knob (**type will vary depending on stove-top model**). You should light the stove with the igniter knob rather than with a match.

USING THE IGNITER KNOB

1. Turn the valve at the liquid propane (LP) gas tank counterclockwise to its fully opened position. (The liquid propane (LP) gas detector must be in the "ON" position and the green light blinking).
2. Push in and turn the desired knob to the desired position.
3. Turn or push the igniter knob (Depending on stove-top model). This will cause a spark which will ignite the flame. If the stove will not light, turn the burner knob to the "OFF" position to stop the flow of liquid propane (LP) gas. You may then try using a match.
4. Once lighted, adjust the flame to the desired level.



Image 78.1
Motorhome Stove-Top (Model May Vary
Depending On Your Model)



Image 78.2
Motorhome Stove-Top Hood Vent

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

STOVE-TOP (RANGE) CONTINUED

USING A MATCH



WARNING: MISUSE OF THE LIQUID PROPANE (LP) GAS STOVE-TOP CAN RESULT IN FIRE AND EXPLOSION IN A MOTORHOME JUST AS IT CAN IN ANY KITCHEN.

USE EXTREME CAUTION WHEN LIGHTING THE STOVE-TOP BURNERS WITH A MATCH.



TO PREVENT TOO MUCH UNBURNED LIQUID PROPANE (LP) GAS FROM ACCUMULATING, FIRST LIGHT THE MATCH, HOLD IT NEXT TO THE BURNER AND "THEN" OPEN THE BURNER VALVE.



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

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

THE FURNACE

HOW IT OPERATES

Use the wall mounted thermostat (Image 80.1) to turn the furnace on. Air is heated by burning liquid propane (LP) gas. A blower using 12V power from the coach battery(ies) circulates the hot air through the motorhome.

NOTE: If the chassis battery(ies) are not being charged via the chassis engine, a campground connection or the generator, the furnace blower will discharge the power supply in about two to three hours and then the furnace will shut off.

If this happens, you may recharge the battery(ies) by running the chassis engine, generator or campground connection. Charging by the chassis engine or the on-board generator will replenish your battery(ies) to sufficient power in approximately forty five minutes.

FURNACE START UP

- Verify that the liquid propane (LP) gas is turned on in the full open position and that the liquid propane (LP) gas detector is "ON" and the green light is flashing.
- Move temperature selector on the wall thermostat to its highest position.
- Allow three to four minutes after the blower motor starts for the air to heat up. The ducts are located near the floor throughout the motorhome.
- Adjust thermostat to the desired temperature setting



Image 80.1
Furnace Control

LIQUID PROPANE (LP) GAS APPLIANCES

CONTINUED

TROUBLESHOOTING THE FURNACE

PROBLEM	POSSIBLE CAUSES	CHECKS/SOLUTIONS
Furnace blows no air.	<ol style="list-style-type: none"> 1. Blown fuse. 2. Thermostat operation malfunction procedures. 	<ol style="list-style-type: none"> 1. Replace 15AMP fuse at converter. 2. Review furnace start up.
Furnace blows cold air only after a three to four minute delay.	<ol style="list-style-type: none"> 1. Out of liquid propane (LP) gas. 2. Liquid propane (LP) gas detector is not "ON". 3. Liquid propane (LP) gas is not turned on. 4. Air in the liquid propane (LP) gas lines. 	<ol style="list-style-type: none"> 1. Refill the liquid propane (LP) gas tank. 2. Turn liquid propane (LP) gas detector to the "ON" position. 3. Open the liquid propane (LP) gas valve. 4. Cycle the furnace "ON" and "OFF" several times, waiting 45 seconds between cycles.
Heats only when using an external power source.	<ol style="list-style-type: none"> 1. Low coach battery. 	<ol style="list-style-type: none"> 1. Check battery condition and charge if necessary.

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

WATER HEATER

Your motorhome is equipped with a liquid propane (LP) gas water heater. The water heater "ON/OFF" switch is located on the monitor panel (Image 82.1) next to the generator start button.

The water heater has a six gallon capacity for water. The water is supplied from two different sources; campground water supply via a fresh water spigot through a water hose connected to the fresh water connection of your motorhome or a supply of fresh water carried on-board in your fresh water tank. To obtain fresh water from your on-board tank, you must turn on your water pump by turning on the switch located on your control panel (Image 82.1). Refer to manufacturers literature for further information.

The water is heated by burning liquid propane (LP) gas. This is supplied from your liquid propane (LP) gas tank located on the lower exterior of your motorhome. **NOTE:** If you are running low on liquid propane (LP) gas, the water heater will not operate.

Additionally, the water heater will not operate if there is insufficient electrical voltage in the 12V system to produce a spark to light and maintain the water heater pilot light.

Electronic ignition provides convenience and safety. The water heater is turned "ON" or "OFF" with the control switch on the monitor panel.

The water heater pilot indicator light should come on briefly (up to five seconds) when the control switch is flipped "ON". If the light does not come or stays on too long, see the troubleshooting chart.

Water should be sufficiently hot for bathing in about twenty minutes.



Image 82.1
Water Heater Switch On Monitor Panel



Image 82.2
Water Heater Exterior Of Motorhome with Cover In Place

LIQUID PROPANE (LP) GAS APPLIANCES CONTINUED

WATER HEATER CONTINUED



Image 83.1
Water Heater Exterior with Cover Opened

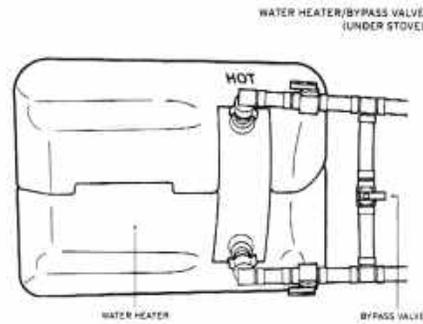


Image 83.2
Water Heater Bypass Valve - Refer to
Manufacturers Paperwork For Further Details

TROUBLESHOOTING THE WATER HEATER

Red light stays "ON".

1. You are out of liquid propane (LP) gas
2. Liquid propane (LP) gas valve is shut off.
3. Air in the liquid propane (LP) gas line.
4. Flame was blow out by wind.
5. Low coach battery(ies).

1. Have the liquid propane (LP) gas tank filled.
2. Turn on liquid propane (LP) gas valve.
3. Cycle water heater several times, wait forty five seconds between cycles.
4. Reposition motorhome.
5. See 12V electrical section.

Red light does not come on at all.

1. Water in tank is already hot (water heater will not light until temperature of water drops.
2. Check fuse at power converter.

1. Carefully check if water is already hot by opening one of the faucets in the motorhome.
2. Replace fuse if necessary.

Water heater leaks at relief valve.

Common due to expansion from heating water to temperature or debris in relief valve.

1. Refer to manufacturers literature for further assistance.



THE WATER SYSTEM

CHAPTER

9

THE WATER SYSTEM

THE FRESH WATER SYSTEM

Please note that this water is not potable (i.e. suitable for drinking), so use only for bathing, washing and toilet flushing. You should purchase bottled water for drinking.

You may set your fresh water system for either a city water connection or your on-board fresh water supply (Image 85.1).

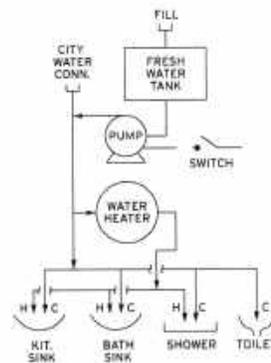


Image 85.1
Fresh Water System Diagram

CAMPSITE WATER HOOK-UP (CITY WATER)

With a campsite water hookup, you will have an unlimited supply of fresh water for bathing, washing and toilet flushing. You should keep in mind however, that all of the water that is used goes into your wastewater holding tanks.

Because of this, you will need to check the monitor panel for water and waste water levels on a regular basis.

To use a campsite water hookup, connect one end of your fresh water hose to the campsite water faucet and the other end to your motorhome's city water connection and then open the campsite faucet 1/4 turn.

If the campsite water pressure is too high, you will need to install an in-line water pressure regulator (usually available at the campground or a local RV dealership's parts department).

ON-BOARD FRESH WATER SYSTEM (TANK AND PUMP)

Your on-board fresh water system consists of a water pump and fresh water tank. To fill the fresh water tank, open the cap on the fresh water tank fill and slowly fill the tank until it is full.

The fill cap may be behind a door on the motorhome exterior and is labeled **"Water Tank Fill"** or **"Potable Water"**. Be careful not to have too much pressure, as the water tank must self vent while filling.

THE WATER SYSTEM CONTINUED

THE FRESH WATER SYSTEM CONTINUED

THE WATER PUMP

Make sure that there is water in your fresh water tank. Then turn on the water pump with the switch located on the monitor panel. The pump will pressurize the system and make the water flow.

The pump runs on 12V electricity from the coach battery(ies). The pump is an "On-demand" type and as soon as the system is pressurized the pump will shut off. However, when you are through using water, you should turn the water pump switch off.



CAUTION: Do not allow the water pump to run when the water tank is empty. Continuous operation with a dry tank could damage the water pump.

THE WATER SYSTEM CONTINUED

THE FRESH WATER SYSTEM CONTINUED

TROUBLESHOOTING THE FRESH WATER SYSTEM

PROBLEM	POSSIBLE CAUSES	CHECKS/SOLUTIONS
Fresh water tank will not take water	<ol style="list-style-type: none">1. Water pressure too high.2. Tank already full.3. Using the city water connection.	<ol style="list-style-type: none">1. Turn water pressure down.2. Check monitor panel and run water.3. Use "Fresh Water Fill", (has cap, no hose connection).
Pump fails to start.	<ol style="list-style-type: none">1. Blown fuse.2. Low voltage.3. Faulty pump.	<ol style="list-style-type: none">1. Check fuse in converter.2. Check coach battery(ies) and charge as needed.3. Contact an authorized service technician for necessary maintenance.
City water connection leaks.	<ol style="list-style-type: none">1. Loose connection.2. Worn or missing gasket.3. Leaky hose.	<ol style="list-style-type: none">1. Tighten water connection.2. Install new rubber gasket for hose.3. Install new water hose.
No water at sinks, shower or toilet.	<ol style="list-style-type: none">1. Water pump is "OFF".2. Unit is out of water.3. Not hooked up to campsite.4. Campsite spigot not turned "ON".5. Coach battery dead.	<ol style="list-style-type: none">1. Turn water pump "ON".2. Fill the fresh water tank.3. Hook up to campsite water source.4. Turn "ON" campsite water spigot.5. Run the engine, on-board generator or plug into shore power to charge coach battery(ies).
Low water flow at sink.	<ol style="list-style-type: none">1. Clogged aerator at sink.	<ol style="list-style-type: none">1. Unscrew aerator and flush out or leave off.
No water at shower.	<ol style="list-style-type: none">1. Knob at shower head is turned "OFF".	<ol style="list-style-type: none">1. Turn knob on back of the shower head "ON".

THE WATER SYSTEM CONTINUED

THE WASTE WATER SYSTEM

Your motorhome has two wastewater holding tanks; a gray water tank and a black water tank (Image 88.1).

The gray water holding tank collects the wastewater from the kitchen and bathroom sink as well as the shower.

The black water holding tank is mounted under the motorhome, directly beneath the toilet and collects all wastewater from the toilet.

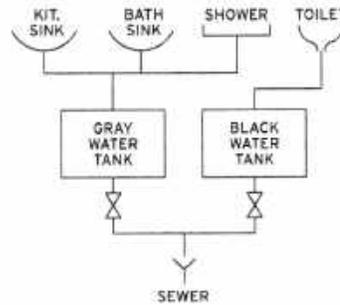


Image 88.1
Wastewater System Diagram

Please observe your monitor panel for the level of your tanks. Your monitor panel will indicate when the tanks are getting full. You will have to manually empty the waste tanks by connecting the sewage hose supplied with your motorhome.

REFER TO "DUMPING THE HOLDING TANKS"

THE MOTORHOME TOILET

Your motorhome toilet (Image 88.2) is a fresh water system. To use it, you must turn "ON" the water pump or connect to a campground water supply.

Before using the toilet, fill the bowl at least 1/2 full with water. To fill, press the toilet pedal 1/2 way down.

To flush the toilet, press the pedal all the way down. Make sure all of the waste and paper have cleared the bowl before releasing the pedal.



Image 88.2
Motorhome Toilet



CAUTION: Never flush paper towels, facial tissue, feminine products into the toilet. These items will clog the tank drain. If a backup occurs, fill the bowl with hot water and allow to stand. The blockage should dissolve shortly. NEVER attempt to unclog the motorhome toilet with caustic chemicals. They will damage the toilet mechanism.

THE WATER SYSTEM CONTINUED

THE WASTE WATER SYSTEM CONTINUED

DUMPING THE HOLDING TANKS

Remove the sewer hose from the exterior storage compartment (Image 89.1).

Remove the dust cap from the dump valve drain outlet and connect the sewer hose. Make sure the hose is firmly attached.

Place the plain end of the sewer hose at least six inches into the dump station disposal opening.



Image 89.1
Wastewater Dump Hose and Gate Valves

Open the larger (black tank) dump valve first by pulling the valve handle straight out. This will release the sewage from the black water tank. Wait until the fluid has completely drained.

Now pull the smaller of the two handles (gray tank) to release the liquid from the gray water tank. The gray water will help to flush out the sewer hose.

Close the dump valves and remove the dump hose.

Rinse the sewer hose thoroughly with water and stow the hose back in the exterior storage compartment.

While depressing the toilet pedal all the way down to open the flush valve, add motorhome waste chemical through the open hole directly into the black holding tank. You may use either a chemical packet purchased in the outdoor section of any camping store, RV dealership or the like. This chemical reduces odor by breaking up the solid waste.

Add several gallons of fresh water to the black tank by holding the flush pedal all the way down for about one minute. This water will help prevent waste from clogging the black water dump valve.

THE WATER SYSTEM CONTINUED

THE WASTE WATER SYSTEM CONTINUED

DUMPING THE HOLDING TANKS CONTINUED

REMEMBER: NEVER DRIVE THE MOTORHOME WITH THE WASTE DRAIN OPEN OR WITH THE CAP OFF.

CAUTION: If you are camping and are able to leave your sewer hose hooked up, please keep the tank valves closed. Open the valves only for dumping and then promptly close them again.



Only dump after the tanks are 3/4 full so there will be ample pressure. If you simply leave the valves open, solid waste will settle and your waste tank will become clogged.

TROUBLESHOOTING THE WASTEWATER SYSTEM

Water backs up into shower and/or shower will not drain.

1. Gray water tank is full.
2. Shower drain basket is plugged.

1. Dump water tanks.
2. Clean shower drain basket of hair and debris.

Holding tanks will not dump when the valve handle is pulled.

1. Tank contents frozen.
2. Dump valve broken.

1. Try to dump again after moving to a warmer climate above 40° fahrenheit.
2. Contact an authorized service technician for necessary maintenance and repair.

Monitor panel says tank is full after they have been dumped.

1. Non-motorhome toilet paper used and sensors may be compromised.

1. Do not run water into tank for a while to allow for the sensors to dry out. Then check monitor panel again. If still not reading properly, try to flush out the tanks several times at a dump station.



WINTER OPERATIONS

CHAPTER

10

WINTER OPERATIONS

FREEZE DAMAGE PRECAUTION

A motorhome can be used during the colder winter months, however there is always a possibility of freeze damage to the water system. To prevent this from occurring, here are a couple of suggestions regarding winterization.

DRY METHOD

This method must be performed by an authorized service technician and consists of completely removing "ALL" of the water from the motorhome, which results in the loss of use of the water system.

This is most commonly done when the motorhome will be stored for more than twenty four hours in below freezing temperatures.

THIS METHOD WILL PROTECT THE MOTORHOME AGAINST FREEZE DAMAGE.

WET METHOD

In order to MINIMIZE the risk of freeze damage, if you choose to use the water system in below freezing temperatures, the following guidelines are recommended:

- Purchase four gallons of approved motorhome non-toxic anti-freeze.
- Pour two gallons of motorhome non-toxic anti-freeze into the fresh water tank and fill with water to 1/2 full (if tank is full, drain to 1/2 tank).
- Turn on pump switch and open the cold water sides of all faucet fixtures. Leave open until the anti-freeze comes out (color of anti-freeze put into tank). Repeat for hot water side.
- Flush toilet until anti-freeze begins to flow into the toilet bowl and then pour one gallon of anti-freeze down the toilet to winterize the black tank.
- Pour anti-freeze down each shower/tub, lavatory sink and kitchen sink to fill the p-traps.
- To winterize the gray water tank, pour 1/2 half gallon down each related sink drain.



NOTICE: If anti-freeze is added to the water system, the shower and sink(s) cannot be used again until the motorhome is properly de-winterized by a qualified service technician.

WINTER OPERATIONS CONTINUED

TIPS FOR COLD WEATHER CAMPING

The water heater and furnace should be on at all times. A minimum of 15AMP power (external shore line) connection is required to operate the motorhome furnace for extended periods, plus a sufficient supply of liquid propane (LP) gas.

Do not let the motorhome sit for more than twelve hours. Idle the engine or drive the motorhome a short distance at least every twelve hours until normal operating temperature is reached.

In freezing conditions, the liquid propane (LP) gas can vaporize and cause the liquid propane (LP) gas system to freeze. Following the above steps will help minimize this possibility.

NOTE: Snow chains are not recommended for use on a motorhome. Damage created by the use of snow chains is not covered under the Tiffin Motorhomes manufacturers warranty.



TROUBLESHOOTING INDEX

CHAPTER

11

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
120-V Power.	Generator running but no 120-V power. Plugged into shore power but no 120-V power in coach.	Generator breaker is tripped. Shoreline not plugged in inside shoreline compartment. Breakers in converter are tripped. Breaker at shore power hook-up is off. Breakers in converter are off.	Reset breaker on generator. Plug shoreline to receptacle inside shoreline compartment. Reset breakers in converter. Turn on shore box power. Reset breakers in converter.
120-V Power at Receptacles.	Microwave and A/C work but no power to outlets.	GFCI tripped. Converter breakers tripped.	Reset GFCI on bathroom or kitchen. 120-V outlet. Reset breakers in converter.
12-V Power System.	No power to amenities.	Low coach battery. Blown fuses in Battery compartment. 40AMP breaker needs to be reset or cool down.	Run chassis engine or generator to recharge battery(ies). Replace fuses as needed. Reset 40AMP breaker found near converter panel, either under dinette seat or rear bed.
City Water Connection.	City water connection leaks.	Connection loose at coach. Rubber gasket missing from connected hose.	Tighten connection. Obtain a rubber gasket for hose and replace as necessary.
Carbon Monoxide (CO) Detector.	CO detector chirping. Alarm sounds and will not reset.	Low coach battery(ies). CO in coach. Chassis engine or generator has been running while windows are open.	Run chassis engine or generator to recharge battery(ies). Shut off engine and/or generator and let coach air out and then reset the detector.
Coach Battery.	Reading low on monitor panel.	Coach battery(ies) are low.	Run chassis/generator to recharge battery(ies).

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
Coach Battery(ies).	Rotten egg smell.	Battery(ies) emitting sulfur fumes due to short or over charging of battery(ies).	Open all windows until motorhome is aired out. Contac an authorized service technician for necessary maintenance.
Coach Lighting.	Lights are dim or not working.	Dead or low coach battery(ies). 40AMP breaker is "OFF" .	Run engine or generator to charge coach battery(ies). Reset 40AMP breaker.
Engine Ignition System.	Engine cranks slowly or not at all.	Poor chassis battery connection or low charge in chassis battery.	Clean and/or tighten the battery terminals. Use emergency start switch on lower left corner dash under steering column while turning the ignition key.
	Key is stuck or will not turn.	Steering wheel turned too either too far to the right or left. Key is not in right position.	Firmly rotate the steering wheel left or right until the key turns freely. Turn ignition key all the way back and then turn one click forward.
Fresh Water System.	Fresh water tank will not fill.	Tank is already full. Fill pressure too high. Attempting to fill tank through city water connection. Hose not deep enough.	Check monitor panel reading and run water. Turn down water on the fill hose. Locate the separate connection labeled "Fresh/Potable water". Push hose father into fill hole.
Furnace.	Furnace blows no air.	Fuse blown in converter. Thermostat is turned "OFF" .	Replace 15AMP fuse in converter or 2AMP fuse in thermostat (if applicable). Turn furnace switch to "ON" .
	Furnace blows cold air.	Unit is out of propane.	Refill propane tank.

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
Furnace.	Furnace blows cold air.	Main liquid propane (LP) gas tank is "OFF" . Liquid propane (LP) gas detector is "OFF" . Air in liquid propane (LP) gas lines.	Turn "ON" main liquid propane (LP) gas tank. Reset detector. Cycle furnace "ON" and "OFF" several times waiting 45 seconds between cycles.
	Heats only when using external power source.	Low coach battery.	Run chassis/generator to recharge coach battery(ies).
Gauges and Instrumentation.	ABS light flashing or stays lit.	Anti-lock brake system is disabled but normal braking is still effective.	Contact an authorized Ford Dealership for required service.
	Brake light is "ON" .	Parking brake may be on. Low brake fluid.	Release parking brake. Check brake fluid, if level is ok contact an authorized Ford Dealership for required service.
	ABS and brake lights are both lit.	Speed sensor malfunction. Combination of ABS problem plus parking brake "ON" or low brake fluid.	Contact an authorized Ford Dealership for required service. Release the parking brake, check fluid levels and Contact an authorized Ford Dealership for required service.
	Service engine soon (SES) light stays on.	One of the engines emission control systems may be malfunctioning.	Vehicle may be running out of fuel. Poor quality fuel or water in fuel. Fuel cap may not have been properly tightened. Contact an authorized Ford Dealership for required service.

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS	
Gauges and Instrumentation.	TOW/HAUL light is "ON" or blinking.	Overdrive is "OFF".	Reactivate overdrive.	
		Transmission malfunction detected.	Contact an authorized Ford Dealership for required service.	
GFCI Power Outlet.	Reset button does not pop out when tested.	Loss of ground fault protection.	Contact an authorized service technician for maintenance, do not use outlets until issue is resolved.	
Generator.	Circuit breaker trips.	Overloaded circuit.	Turn "OFF" some electrical load and reset circuit breaker.	
		Crank fast but won't start.	Not enough fuel in gas tank.	Add fuel to chassis tank.
			Not enough fuel to generator.	Refer to manufacturer's literature for priming generator and restarting.
	Low oil level.		Add HD30 or 10W-30 oil to generator.	
	Plugged fuel filter.		Contact an authorized service technician for maintenance,	
	Crank slowly or not at all.	Inoperative fuel pump.	Contact an authorized service technician for maintenance.	
		Fouled spark plug.	Contact an authorized service technician for maintenance,	
		Low coach battery.	Start chassis then start the generator.	
		Load connected.	Disconnect load before starting.	
	Generator runs then surges.	Bad battery connection.	Clean and/or tighten battery connections.	
Blown fuse.		Replace fuse on generator panel.		
Started with load "ON".		Turn "OFF" all appliances and restart generator.		

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
Generator.	Starts and runs until button is released.	Low oil level.	Add HD30 or 10W-30 oil to generator.
		Malfunction in generator.	Contact an authorized service technician for maintenance.
	Stops when driving around corners.	Low fuel level.	Refuel motorhome gas tank.
		Low oil level.	Add HD30 or 10W-30 oil to generator.
		Excess oil.	Reduce generator oil level.
Holding Tanks.	Holding tanks don't dump when valve handle is pulled.	Tank contents frozen.	Try to dump again after you have moved to a warmer climate.
	Holding tanks don't dump when valve handle is pulled.	Dump valve blocked.	Contact an authorized service technician for maintenance.
	Monitor panel says tank is full after it has been dumped.	Debris is stuck on tank sensor.	Pour two gallons of warm soapy water down shower for gray tank or toilet for black tank. When driving this should clear the sensor and give a proper reading.
Kitchen Sink.	Little or no water flow.	Water pump is "OFF".	Turn "ON" water pump at monitor panel.
		Unit is out of water.	Add water to the fresh water tank.
		Clogged aerator.	Unscrew faucet aerator and clean it.
Liquid Propane (LP) Gas Ssystem.	(LP) gas is not flowing to amenities.	Main tank valve not open.	Open main tank valve.
		(LP) gas detector is "OFF".	Turn "ON" or reset the (LP) gas detector.
		Coach battery is dead.	Run chassis engine or generator to charge coach battery(ies).
		Low pressure in (LP) gas tank.	Add liquid propane (LP) gas to main tank.

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
Liquid Propane (LP) Gas Ssystem.	(LP) gas is not flowing to amenities.	Freezing temeerature not allowing (LP) gas to vaporize.	Move to a warmer location or wait until (LP) gas warms up.
	(LP) gas detector alarm activated or will not reset.	Low coach battery.	Run chassis engine or generator to charge coach battery(ies).
		Combustable fumes in area of detector.	Air out coach and try to reset (LP) gas detector. If detector will not reset then turn " OFF " main (LP) gas valve at tank. Contact local emergency personnel to check for (LP) gas fumes in motorhome and have system checked any an authorized service technician immediately.
		Item blocking detector.	Move items away from (LP) gas detector and reset if necessary.
Mcrowave.	Won't turn " ON ".	No 120V power to microwave.	If air conditioner is working, check for breakers in the converter. If air conditioner is not working and breakers are okay, check in the cabinet next to the microwave and make sure it is plugged in.
	Microwave turns " ON " but no heat.	Microwave is bad.	Contact an authorized service technician for maintenance.
Monitor Panel.	No lights on panel.	Blown fuse.	Check fuse at power converter marked " Monitor Panel " and change if necessary.
		40AMP breaker. Dead battery.	Reset 40AMP breaker. Run chassis engine or generator to recahrge battery.

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
Refrigerator.	Check light is on.	(LP) gas valve is closed.	Open main tank (LP) gas valve.
		Temperature slider is disconnected.	Make sure temperature slider is connected to the fin inside of the fridge and wire is attached.
		Clogged (LP) gas igniter.	Cycle the (LP) gas lines. Turn fridge "ON" for thirty seconds and "OFF" for thirty seconds. Do this five or six times.
	Refrigerator doesn't turn "ON" .	Tripped high temperature limit switch.	Refer to the manufacturers literature for resetting the switch.
		Low or dead coach battery(ies).	Run chassis engine or generator to recharge battery.
		Air in the (LP) gas line.	Cycle the (LP) gas lines. Turn fridge "ON" for thirty seconds and "OFF" for thirty seconds. Do this five or six times.
Refrigerator does not work on (LP) gas.	Other (LP) gas problem.	Troubleshoot the (LP) gas system.	
	Refrigerator does not work on 120V mode.	Circuit breaker tripped.	Check the breakers in the converter.
		No 120V power to coach.	Troubleshoot the 120V system.
Rooftop A/C.	A/C doesn't run.	No 120V power to A/C.	If using generator, make sure shoreline is plugged into receptacle in compartment. If using external 30AMP connection, make sure breaker is in the "ON" position. Check breaker in converter to make sure it is "ON" .

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
Rooftop A/C.		Cooling coils inside A/C are frozen.	Turn "OFF" A/C and let stand for forty five to sixty minutes to allow thawing.
Shower.	Shower faucet on but no water coming out.	Knob at back of shower head is turned "OFF" . Knob spins freely.	Turn knob/push button at back of showerhead. Remove cap in middle of shower knob and tighten the screw inside.
	Water backing up into shower.	Gray water tank is full. Clogged drain/drain cover.	Empty gray water tank. Clean drain cover and clear shower pipe to release water. No chemicals can be used as they can cause damage to the piping of the vehicle.
Stove Top.	(LP) gas flowing out of burner but not lighting.	Manual lighter inoperative. Igniter lead has come "OFF" the lighter.	Use matches or a lighter to light the stove. Refer to manufacturers literature on how to reconnect the igniter lead.
	Stove burner won't light and no (LP) gas is flowing.	(LP) gas tank is empty. Main (LP) gas tank valve is turned "OFF" .	Refill the (LP) gas tank. Turn main (LP) gas tank valve "ON" .
Toilet.	No water in toilet.	Water pump is turned "OFF" . Fresh water tank is empty.	Turn water pump "ON" at monitor panel. Fill the fresh water tank.
Water Heater.	Red light comes on and stays on.	(LP) gas not lighting.	Cycle the lines. Turn water heater switch "ON" for thirty seconds and "OFF" for thirty seconds. Repeat five or six times.
		Out of (LP) gas.	Refill the (LP) gas tank.

PROBLEM	SUB-PROBLEM	CAUSES	SOLUTIONS
Water Heater.	Red light comes on and stays on.	Main (LP) gas valve is "OFF".	Turn main (LP) gas tank valve "ON".
	Red light doesn't come on.	Water is already hot. Fuse blown.	Check faucet carefully for hot water. Check 15AMP fuse in converter.
	Leaking at the relief valve.	Common due to the expansion after water heater heats up water to operating temperature. Debris in relief valve.	Use some hot water from the system and this should help relieve the pressure. Open and close the relief valve. CAUTION: WATER WILL RUSH OUT AND COULD BE VERY HOT.
	Water heater is "ON" but water is not hot.	Bypass valve may be open.	Close bypass valve.
Water Pump.	Water pump not pumping.	Low or dead coach battery(ies).	Run chassis engine/generator to recharge battery(ies).
		Fresh water tank empty.	Fill fresh water tank.
		Water pump is not "ON".	Turn water pump "ON" at monitor panel.
		Water pump jammed.	Contact an authorized service technician for maintenance and repair.



MAINTENANCE & DATA CHART

CHAPTER

12



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