

1983-1986



Coachmen
RECREATIONAL VEHICLES

Camping Trailer

owner's manual

Welcome to Coachmen's ever-growing family of happy RV owners. Hours of relaxation, adventure and enjoyment are possible for you in your new Coachmen unit. Thousands of Coachmen RV owners have been enjoying their units for many years.

This Owner's Manual has been prepared to help you and your family enjoy your new Coachmen RV to its fullest, by providing basic instructions for the operation and maintenance of its appliances, accessories and RV systems. Read it carefully and follow the instructions. Also read and follow the instructions contained in the appliance and accessory instruction booklets provided by various manufacturers which also are a part of the "Coachmen Information Packet".

Operating and maintenance instructions pertaining to appliances in this Owner's Manual were obtained from and are used with the permission of the various manufacturers. We reserve the right to present edited portions of their material.

Coachmen Industries, Inc., works year-round to improve its products. Accordingly, all specifications, equipment, and prices set forth in Coachmen literature are subject to change without notice or obligation.

Coachmen offers a wide variety of Recreational Vehicle models and choices of standard and optional equipment; therefore, certain descriptions in this manual may not apply to your unit. Ask your Coachmen dealer, or see the current brochure, for information concerning available standard or optional equipment.

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INTRODUCTION

GENERAL

Now that you've purchased your new Coachmen camping trailer, you're anxious to start on your first trip. And we want you to. Coachmen and your authorized dealer have cooperated in providing the means for a quick getaway: Coachmen by designing and building your unit to rigid standards and thoroughly testing it at the factory, and your dealer by a careful re-testing of systems and an inspection prior to delivery to you. Yet, after all that, we're going to ask you not to make a hasty departure. Because we want you to enjoy every trip, whether it's overnight, a weekend or season-long excursion, we first want you to get to know your unit and make careful preparations. That's why you'll find more than operating and maintenance instructions in this manual: You'll also find tips and suggestions to help you get started. There also are dozens of illustrations for easy identification of the various components.

NOTE: Illustrations identified by a Figure Number will be found in the convenient fold-out at the back of the manual.

Our first suggestion is that after you've read this manual and the appliance and accessories instruction booklets, store them in your unit for handy reference.

An overnight or weekend "shakedown" trip can help RV'ing novices become familiar with their unit and its systems and appliances. The experience gained and the hints other RV'ers are usually eager to share will help make future RV'ing more enjoyable. Although you purchased your unit with certain standard and/or optional equipment, you may wish to add other accessories later. Experience is invaluable in determining which additional items, if any, to choose. Remember, your Coachmen dealer will assist you in every way possible.

LICENSES

The vehicle licensing laws vary from state-to-state. Check with your license bureau or nearest branch office for the requirements in your state. Be sure to renew your driver's license if it has or will expire during your trip.

INSURANCE

Personal liability, property damage, collision and theft of contents may be features of your automobile policy which apply to your Coachmen unit. Contact your insurance agent about details of your coverage. Always carry your policy card.

TOW VEHICLE SELECTION

GENERAL

Selection of an adequate tow vehicle is essential. If you plan to use an automobile or truck you already own, contact the vehicle manufacturer or represen-

tative for information. If you will be purchasing a new tow vehicle, be certain to tell your dealer the type and size of the RV you will be towing.

ENGINE SIZE

The engine must have enough horsepower to handle the tow vehicle, passengers, Coachmen unit and all its cargo. Most automotive manufacturers offer a trailer towing package which may include: Larger alternator and battery, heavier ply tires, sideview mirrors, heavier electrical wires, larger engine and transmission cooling systems. Consult the tow vehicle manufacturer's owner's manual for recommendations.

NOTE: The use of heavier suspension components (springs, shocks, axles) or heavier ply tires DOES NOT increase the weight ratings printed on the tow vehicle's identification or certification plate. The Gross Axle Weight Rating (GAWR) of each axle is determined by the components within the axle system with the lowest load-carrying capacity.

BRAKE CONTROL AND VEHICLE OPTIONS

Units equipped with electric brakes must have a brake control installed in the camping trailer or tow vehicle to operate the brakes. Automotive air conditioning, automatic transmission, power brakes, power steering and cruise control are features that could make your trips more enjoyable.

LOAD CARRYING HITCH REQUIREMENTS

Your camping trailer fits a 2" hitch ball. Ask your Coachmen dealer about the proper Class of load-carrying hitch to use. The selection of the hitch is important since it affects towing and handling characteristics. Read the information supplied by the hitch manufacturer to achieve best possible performance. The hitch weight for your unit is listed in the sales brochure; be certain your tow vehicle can carry the hitch weight.

NOTE: Installation of a Weight-Distributing (Load-Equalizing) Hitch is NOT recommended on any vehicle towing a camping trailer.

TRAVEL PREPARATIONS

GENERAL

Determine the various items of equipment, clothing, food and other supplies required for the length and destination of your journey. In a subsequent section, the importance of proper loading is explained, but at this stage you're more concerned with a quick getaway. One way to reduce loading time is to purchase dinnerware, flatware, pots, pans, towels and bedding, which can remain in your unit at all times. After a trip, clean and launder the articles and replace them in your RV, ready for your next trip. The following is a guide to help in your travel preparation.

CLOTHING

Compile a clothing list for each person. Consider the season and areas through which you intend to travel. Basic articles: Underwear, socks, footwear, shirts, blouses, trousers, slacks, dresses, shorts, sweaters, jackets or coats, rainwear and swim suits.

CAMP HYGIENE

Dishsoap, dishcloths and dishtowels; garbage and trash bags; mop, broom and dustpan.

PERSONAL HYGIENE

Toilet paper, soap, washcloths, towels, toothpaste, toothbrush, deodorant, and shaving kit.

SAFETY

Flares and reflectors; flashlight; first aid kit; tow rope and/or chain.

FOOD AND WATER

Don't try to take a food supply for an extended trip. Take enough for two or three days and replenish supplies along the way. Take a basic supply of seasonings: sugar, salt, pepper and spices. Plan meals so that fresh or refrigerated items are used before they spoil. Fill your fresh water holding tank before leaving.

MEAL PREPARATION

Bottle cap and can opener; matches, lighter or igniter device; pots, pans, plates, glasses, and cups (paper or plastic are lighter and less likely to break while the vehicle is in motion); silverware and carving knife.

TOOL CHEST

Include an assortment of wrenches and screwdrivers, pliers, hammer, tire pressure gauge, small level, electrical and masking tape.

ADDITIONAL TOOLS

Hatchet, saw, shovel, and 12-volt portable tire pump.

EQUIPMENT

Fresh water hose (garden) and bucket; "Y" type water hose fitting; 20-foot 3-prong power cord; 3-prong adapter with grounding wire; fuses; wheel chocks, leveling ramp or blocks.

SLEEPING GEAR

Sleeping bags are ideal for cold climates, but sheets and blankets are better suited for warm weather. Take along an extra blanket or two for sudden drops in temperatures, such as can be expected in mountain areas even during summer. Be sure to take pillows, pajamas and mattress pads, if normally used.

ENTERTAINMENT

Take along games, toys, books, magazines, or other items of entertainment to occupy passengers while traveling or in case you encounter inclement weather.

IMPORTANT DOCUMENTS

Carry your vehicle registration and insurance policy card(s). If you are borrowing a vehicle, you should have a notarized letter of authorization from the owner with you.

TOURIST INFORMATION

Obtain current road maps and tourist information from each state through which you intend to travel. You also may want to purchase a tourist guide book.

If you will be visiting federally-operated national parks, monuments and recreation facilities, you may wish to look into the Golden Age Passport and the Golden Eagle Passport. They can help families cut spending at those areas where fees are involved.

GOLDEN AGE PASSPORT — The Golden Age Passport is a free lifetime pass for persons 62 and over and covers all admission fees and a 50 percent discount on use fees (except fees charged by private concessionaires). It may be obtained only at park service offices and at parks where entrance fees are charged. It cannot be obtained by mail or at post offices. To obtain the Golden Age Passport you will need proof of age, such as a driver's license, or be prepared to sign an affidavit swearing that you are 62 or over. NOTE: Medicare cards are not accepted since in some cases they are issued to younger persons.

GOLDEN EAGLE PASSPORT — The Golden Eagle Passport costs \$10 and is designed for persons who plan to visit several parks or federally operated facilities in a single year. It covers all admission charges but does not cover use fees and is good only during the calendar year in which it is issued. It may be purchased in person or by mail at the National Park Service headquarters, Department of the Interior, Washington, D.C. 20240; at regional offices and at facilities where entrance fees are charged.

Both the Golden Age and Golden Eagle Passports cover admission fees for the permit holder and any persons accompanying him or her in a private vehicle. Where entry is not by vehicle, the passport covers the permit holder and members of his or her immediate family.

HOME SECURITY

Make arrangements for someone to check your house periodically. Stop mail and newspaper delivery. If you intend to be away for more than 2 weeks, request police surveillance. Carry an extra set of vehicle and house keys on a separate key ring.

CANVAS

You should condition the canvas on your camping trailer before your first trip. For instructions, see CANVAS in the MAINTENANCE section.

TOWING HOOKUP

COUPLER

Crank the front jack (Figure 1) clockwise to raise the coupler above the hitch ball. Maneuver the tow vehicle to position the ball directly under the coupler.

ELECTRIC BRAKES — Raise the coupler lever to its fullest extent (Figure 1). Crank the front jack counterclockwise to lower the coupler onto the hitch ball. Secure the connection by pushing the coupler lever down. For theft protection, you may purchase a padlock or similar locking device to insert through the coupler lever holes. After attaching the coupler to the hitch ball, adjustments may be necessary to eliminate hitch rattle. This is done by tightening the coupler adjustment nut located beneath the coupler (Figure 2).

FRONT JACKS

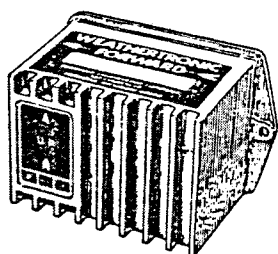
Turn the front jack counterclockwise until the dolly wheel is off the ground. Turn the dolly wheel shaft (Figure 1) counterclockwise and pull downward until the shaft releases, remove and store. Continue turning the crank until the front jack is as high as possible to prevent it from hitting the ground while you are traveling.

SAFETY CHAINS, ELECTRICAL CONNECTION

Cross the safety chains under the "A" frame and attach them to the tow vehicle's hitch platform. Plug the tow vehicle's electrical harness into the camper's pigtail connection (Figure 4). Leave enough slack in the chains and pigtail to permit the unit to turn freely. Safety chains should not be touching the ground.

ELECTRIC BRAKE CONTROLLER

The electric brake controller — available only on models with electric brakes — automatically activates the brakes on your camper whenever the tow vehicle decelerates. It provides braking effort directly proportional to the braking action of the tow vehicle.



ELECTRIC BRAKE CONTROLLER

HITCH BALL HEIGHT

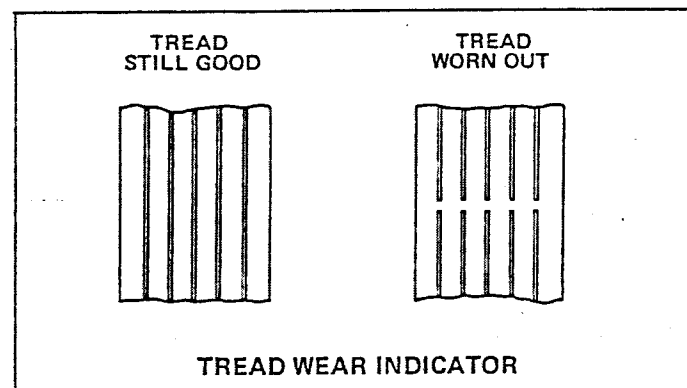
When the loaded trailer is hitched to the tow vehicle, check the hitch ball height. It can be determined by measuring from the top of the curved portion of the coupler to the ground (Figure 1). A high hitch will transfer weight behind the axle, causing the unit to fishtail. A low hitch will transfer additional weight to the hitch. See APPLIANCE IDENTIFICATION FORM section for proper hitch ball height.

PRE-TRAVEL CHECK

GENERAL

Whether departing from your home, rest area, or campsite, you should perform these pre-travel checks inside and outside your camper:

TIRES should be inspected before each trip. Replace a tire when it is worn to 1/16" depth in two or more adjacent grooves, or to the level of tread indicators molded into the bottom of the tread grooves, when the indicators appear in two or more adjacent grooves at three locations around the tire. Check tire for uneven wear, road damage, foreign objects or excessive peeling or bulging.



When purchasing a new tire, be certain it is the same size and has the same ply rating and load range as the old tire. **DO NOT** mix radial ply with bias or bias-belted tires.

Each morning inspect tire condition and pressure on your RV and tow vehicle. Heat generated by surface friction will increase the tire's air pressure approximately 6 to 9 psi; therefore, do not bleed air out of a hot tire. Inflate to recommended pressure as indicated on tire or in tire manufacturer's instruction booklet.

NOTE: Proper tire inflation is extremely important.

WHEEL LUGS must be tightened before departure, then every 50 miles for the first 200 miles during your initial trip and after each tire change.

WHEEL BEARINGS — Check wheel bearing lubrication at the beginning of each camping season or before an extended trip. Inner and outer bearings should be packed with a lithium-based, multi-purpose, extreme pressure NLGI #2 grease. Apply a modest

amount of grease directly to the bearing. Work it in until all rolling elements are coated with a layer of the lubricant. A little grease may be applied to the hub cavity. Check for damage to rims and hubs.

HITCH should be inspected to be sure it has not loosened.

FRONT JACK must be raised as far as possible.

DOLLY WHEEL must be removed and stored.

LP GAS BOTTLES and connections should be secured and the Service valve closed.

NOTE: Some states prohibit vehicles equipped with LP gas bottles from using tunnels. A few other states prohibit traveling with the Service valve open. Check the regulations of the states through which you intend to travel.

SAFETY CHAINS must be properly attached to the tow vehicle.

STABILIZING JACKS should be removed and stored.

PIGTAIL should be properly connected to the tow vehicle's electrical harness.

LIGHTS should be tested on the Coachmen RV unit and the tow vehicle, including brake lights, turn signals, warning flashers, clearance lights, tail-lights and tow vehicle headlights. Be sure interior lights are turned off before lowering the roof.

REARVIEW MIRRORS should be adjusted so the driver can see both sides of the unit.

POWER CORD (120-Volt Shoreline) must be unplugged from the external source, pushed into its compartment and the cord hatch secured.

WATER FILL hoses must be disconnected and the caps secured.

DRAIN OUTLET hose must be disconnected and the cap secured.

VENTS should be closed and secured.

INTERIOR DOORS AND DRAWERS should be closed and secured. Loose items should be lashed down or stored away.

UPPER DOOR must be disengaged from the lower door and secured by the ceiling turn buttons.

REFRIGERATOR OR ICE BOX DOOR should be secured with the travel latch.

HINGED GALLEY CABINET must be lowered and hand pump screwed down securely to avoid interference with the bunk tray.

BUNK TRAYS must be pushed or folded in. Store bunk support poles (Figure 11) and bunk bows (Figure 13).

EXTERIOR ACCESS DOORS AND HATCHES for storage and equipment should be closed and locked.

STEP must be stored in traveling position. Lift outer edge and slide step in under unit to locked position (Figure 5).

ROOF should be lowered and the latches secured.

LOWER DOOR should be locked.

LOADING

GENERAL

A properly loaded vehicle will perform better and handle more safely. Distribute your cargo evenly from side-to-side and front-to-back. Store heavier items as centrally as possible. Lighter items may be stored in cabinets and drawers. Luggage or similar cargo transported inside your camping trailer should be secured to prevent them from causing damage in case of a sudden stop or accident. Remember to leave space and weight allowance for souvenirs or other items you may purchase during your travels. If your unit is not overloaded, you will conserve gasoline and prevent excessive wear on your tow vehicle's automotive system.

WEIGHT DETERMINATIONS

It is extremely important that you weigh your unit prior to leaving on a trip to determine whether your cargo load is within the allowable limits for the various suspension components of your Coachmen unit and tow vehicle. Check the Gross Axle Weight Rating (GAWR) and the Gross Vehicle Weight Rating (GVWR) found on the Federal Stickers of the tow vehicle and Coachmen unit.

FEDERAL STICKER

Found on the road side of your camping trailer, the Federal Sticker lists the Coachmen Serial Number, the Gross Axle Weight Rating (GAWR) and the Gross Vehicle Weight Rating (GVWR). Your tow vehicle also will have a Federal Sticker. The ratings are for the specific rim and tire sizes, which also are listed.

MFD. BY	
Coachmen Industries, Inc.	

GVWR	_____
GAWR FRONT	_____
GAWR REAR	_____ WITH
8.55-15 STIC) 5.60 RIMS, AT 50	
PSI COLD SIN	
THIS VEHICLE CONFORMS TO ALL APPLICABLE	
FEDERAL MOTOR VEHICLE SAFETY STANDARDS	
IN EFFECT ON THE DATE OF MANUFACTURE	
SHOWN ABOVE.	
VEHICLE ID. NO.	_____
TYPE: TRAILER	_____

FEDERAL STICKER

DEFINITIONS

GAWR — The allowable weight, including cargo, which can safely be supported by each axle.

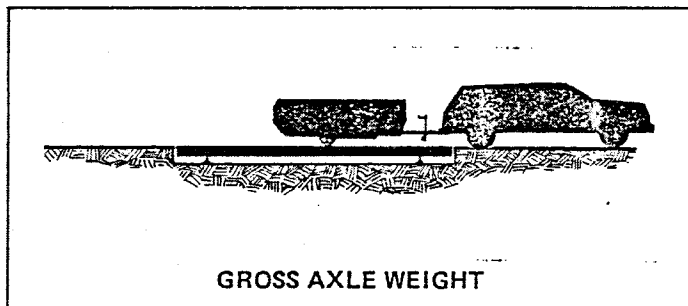
GVWR — The maximum permissible weight of your unit, all options, passengers, and cargo.

GVW AND GAW — are found by weighing the vehicle fully-loaded. GVW is the actual weight of the unit and all standard and optional equipment, cargo and passengers. GAW is the portion of the fully-loaded vehicle which is transferred to the axle.

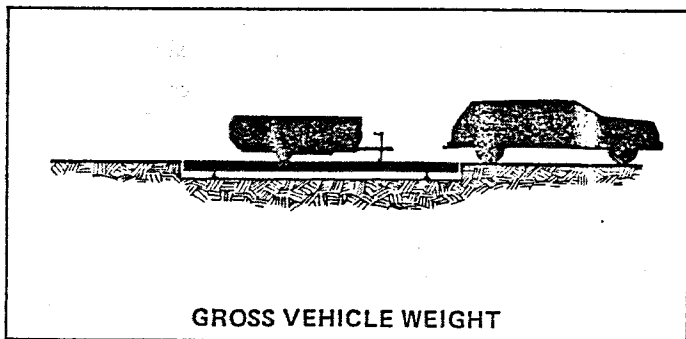
You can weigh your vehicle at a grain elevator, sand and gravel dealer or government weighing station (they are listed in the yellow pages of your telephone book). The small fee involved is a worthwhile investment.

WEIGHING

STEP 1 — The Gross Axle Weight of the Coachmen camping trailer is extremely important. The unit should be weighed, fully-loaded for a trip and connected to the tow vehicle. If the GAW exceeds the GAWR listed on the Federal Sticker, shift or remove cargo to achieve proper tolerance.



STEP 2 — You can find the Gross Vehicle Weight of the Coachmen unit by weighing it fully-loaded, disconnected from the tow vehicle, with the axle and front jack on the scale. If the figure exceeds the listed GVWR on the Federal Sticker, remove cargo to achieve proper tolerance.



STEP 3 — You can find the hitch weight by deducting the GAW (determined in Step 1) from the GVW (found in Step 2). If the hitch weight exceeds 15% of the GVW of the Coachmen unit, move part of the cargo toward the rear. If it is less than 10%, move part of the cargo toward the front. Be certain, also, not to exceed the load rating of your hitch.

CAUTION: Extending the rear bumper or adding rear supports to carry tool boxes, bikes, motorcycles or other heavy equipment may seriously overload the trailer springs, brakes, axle, wheels and tires. In addition, rear-end loads reduce the hitch weight and can cause severe fishtailing. **NEVER EXCEED THE GAWR FOR YOUR UNIT. NEVER TOW with LESS than 10% of the trailer gross weight on the hitch.**

NOTE: See your tow vehicle's owners' manual for proper weight allowances and procedures for determining them.

DRIVING

GENERAL

Your camping trailer has been built to make towing easy, but get to know how your tow vehicle handles with the added weight and length of your Coachmen unit. Before leaving on a trip, practice turning, backing, braking and accelerating. You may find little difference in the operation, but remember to allow extra room for the combined length of the tow vehicle-Coachmen unit. The following are tips to help you in your driving.

PULLING INTO TRAFFIC

Check for oncoming traffic in all directions. Signal before entering the traffic flow. Accelerate slowly and smoothly.

TURNING

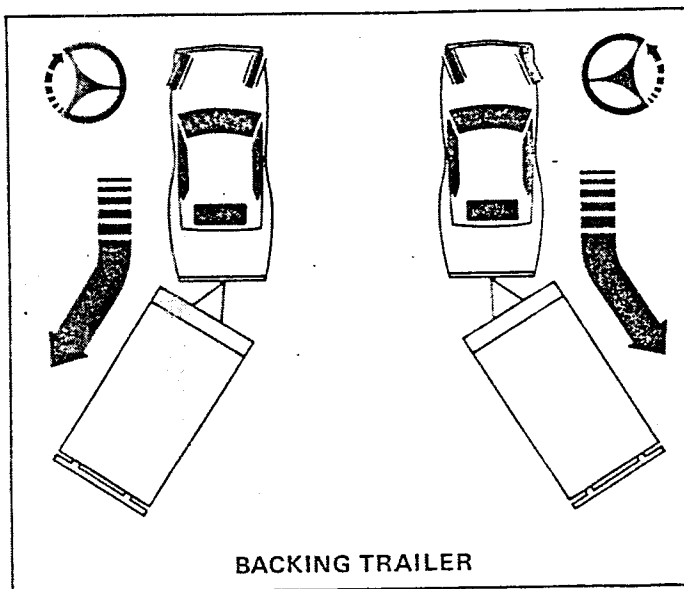
Pull several feet farther into the intersection before turning to allow sufficient clearance for the rear of your Coachmen unit.

PASSING

Avoid sudden maneuvers when passing another vehicle. Remember that additional time and distance are required to pass safely. Wait until the road is clear of oncoming traffic for at least 1/2 mile. Check the outside rearview mirrors and signal lane change and return to your original lane.

BACKING

When backing your camping trailer, place your right or left hand at the bottom of the steering wheel. To move your trailer to the left, move your hand to the left; to move the trailer to the right, move your hand to the right. If the trailer starts to jackknife, stop, pull forward and start again. You may want to station someone behind the unit to help guide you.



BRAKING

Allow a safe distance to stop; follow no closer than one combined tow vehicle-Coachmen unit length for each 10 mph. Pump the brake pedal lightly to stop on wet or icy roads. If you start to slide, turn the steering wheel in the direction of the slide. **DO NOT** tromp the brake pedal — a panic stop may increase the slide and could cause your unit to jackknife. Do not rest your foot on the brake pedal while driving. "Riding" the brakes in this manner may cause overheating, excessive lining wear and possible brake failure.

DOWNGRADES

Speed should be reduced; shift the transmission to a lower range to assist in braking on long or steep downgrades.

UPGRADES

Reduce speed when climbing a steep upgrade. Shift the transmission to a lower gear to avoid engine overheating. If your engine does overheat, consult your tow vehicle owner's manual.

PARKING ON A GRADE

Parking vehicles on a grade is not recommended. If it is necessary, apply the brakes and have a passenger place wheel chocks against the tires of your Coachmen unit. When in place, slowly release brakes until unit is stopped by chocks. Apply parking brake and place transmission in park position (place in gear for stick-shift vehicles).

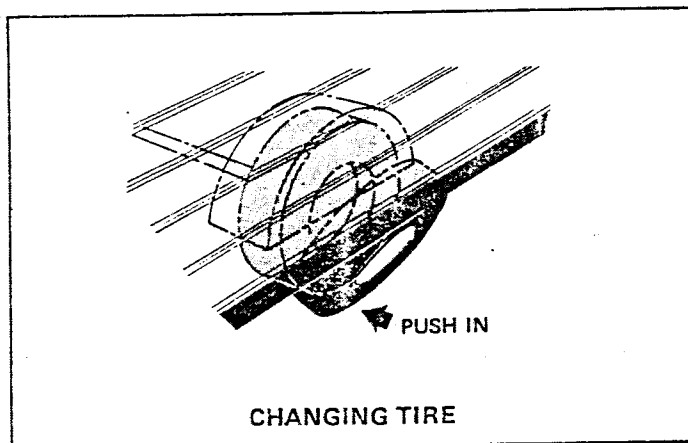
FREEING A STUCK VEHICLE

To pull your unit out of the mud, sand or snow, apply light pressure on the accelerator pedal and move the gear selector rhythmically between 1st gear and reverse. If possible, keep front wheels pointed straight ahead. Avoid sharp turns which could cause the unit to jackknife. Once you start

to move, do not stop until the tow vehicle and camping trailer are on firm ground.

CHANGING TIRE

Change a tire on as level and firm a surface as possible. If you are on the roadside, activate the unit's hazard warning flashers. Set up flares and/or warning lights. Block opposite tire. Place scissors-type or hydraulic jack on a block of wood directly **UNDER THE FRAME**, just behind the axle. **DO NOT** use a bumper jack; it may damage the side-walls or floorboard. Raise the jack to take some of the weight off the old tire. Loosen the lug nuts. Raise the jack until the tire is off the ground, then remove lug nuts. If your unit has an open wheel well, pull off old tire. For units without an open wheel well, tip the top of the tire outward and push inward on the bottom. Lower the tire to the ground and pull it out from under the unit. Place new tire on hub. Replace lug nuts and hand-tighten. Lower the jack until the tire just touches the ground. Firmly tighten lug nuts. Lower and remove jack. Stop at the nearest service facility and have the torque checked. Lug nuts should have a torque of 70 to 80 ft.-lbs.



SWAYING OR FISHTAILING

If your unit sways or fishtails, accelerate, then gradually slow down. If you have an automatic brake controller, apply only the brakes of your camping trailer. If your unit is still swaying, pull off the road and check tire pressure, cargo location, or tow vehicle front end alignment, suspension and lug nuts.

EMERGENCY STOPPING

DO NOT slam on the brakes if the coupler disconnects from the hitch — the camper may strike the tow vehicle. Steer toward the shoulder of the road and gradually reduce speed. The safety chains, which must be crossed under the coupler and hooked to the hitch platform, will prevent the tongue from dropping to the road.

CAMPING

CAMPSITE SELECTION

Because of the rapidly growing number of recreational vehicles, some campgrounds do not accept reservations, but make one whenever you can. If possible, arrive early so you may inspect and choose a site during daylight hours. Try to avoid sites near a swamp, stream or other bodies of water which may harbor mosquitoes or other insects. Avoid parking under dead trees or loose limbs which might fall and cause injury or damage. Stay away from areas which show signs of flash flooding. DO NOT park on private property without first obtaining permission.

COURTESY

Campsites are often close together and the canvas walls of your camping trailer are not a barrier against loud noises, which may disturb your neighbors. Follow the posted rules of the campsite. Open fires may not be permitted. If you can build a campfire, clear the area of flammable materials; never leave a campfire untended and always make certain the embers are completely extinguished.

LIVING AREA

SETUP

Of course you'll want your camping trailer to be level for your own comfort (you don't want items sliding off counters and tables or out of cabinets). But more important, the unit must be level in order for your drainage system, which functions by gravity, to operate properly. Place a small level on the roof of the unit to check levelness. Bubble levels are available from your Coachmen dealer.

NOTE: Once the unit is level side-to-side and front-to-back, you may wish to permanently attach levels on the front and/or back and sides of the camping trailer. This will allow you to tell at a glance if you've stopped on a level site, and will help speed up the leveling process.

If your unit needs side-to-side leveling, you may make a step leveling ramp (Figure 6) using 1" x 6" or 2" x 6" boards of varying lengths. Pull forward or back onto the leveling ramp until the tire on the low side is level. If the unit is off level less than 2", levelness can be achieved by adjusting the stabilizing jacks. You will have two or four stabilizing jacks, depending on the unit.

To install stabilizing jacks and level the trailer front-to-back, unhitch the trailer from the tow vehicle. Install the dolly wheel and crank the front jack down. Never rest the unit on the front jack without the dolly wheel attached, or without a board under it. If the ground is soft, also place a board under the dolly wheel. The jacks must be placed under the frame. Lower the front about 2" below level. Place a jack under each main frame

member — NEVER THE FLOOR — at the rear of the trailer. Raise each jack until it touches the frame. If you have four stabilizing jacks, raise the front jack about 2" above level and place the jacks under the main frame members near the front of the unit. Check levelness from front-to-back and side-to-side. If the unit is off level, adjust the appropriate stabilizing jacks.

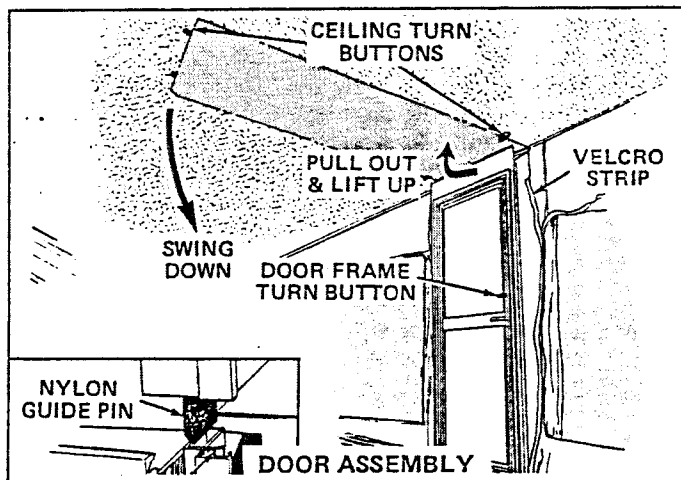
RAISING THE ROOF

GENERAL — Instructions for raising the roof using the crank lift system, the 130F Sunlite system or the multiplex lifter system are found on pages 23, 24 and 25, respectively, of this manual.

CRANK LIFT SYSTEM — Release all four roof latches (Figure 7). Open the winch hatch (Figure 8). Remove the crank from its storage area and attach it to the shaft, turn clockwise until the roof height indicator cable is tight (Figure 9). Remove the handle and close the hatch. Before lowering roof, refer to "Pre-Travel Check" on pages 4-5. With Check List completed, crank winch counterclockwise to lower roof to one foot from camper body. Tuck canvas into unit. Continue cranking until roof is 6" from body; tuck canvas folds into unit and then finish lowering the roof. Secure roof latches. Close winch hatch and stow crank.

DOOR

The lower portion of the door must be closed for proper assembly. From inside the unit, release the ceiling turn buttons and gently lower the upper portion of the door to a vertical position. Pull inward on the top and lift; the door will bend at the hinged plate on top. Position the bottom of the upper door directly over the lower door and insert the nylon guide pins into the lower door slots. Push outward on the top of the upper door frame until the hinged plate is flat. Secure in place with turn buttons on the sides of the hinge plate. Release the turn buttons on the right side of the upper door frame to open the door. Attach the snaps and Velcro strips on the canvas to those on the outside portion of the door frame.

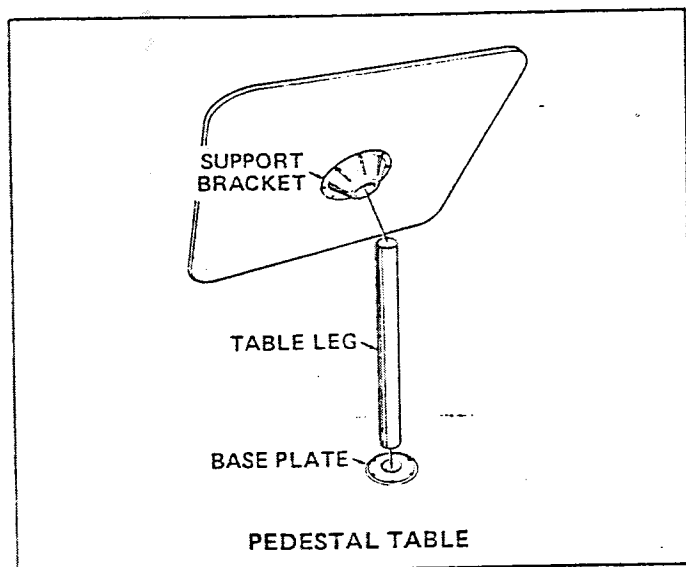


WARDROBE

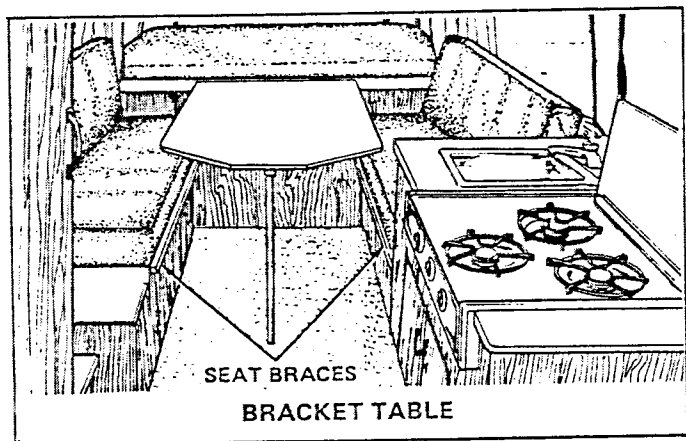
Lift the wardrobe and carefully swing it toward the outside wall to an upright position. Position it on top of the storage cabinet and secure in place with the cam lock located on the rear of the wardrobe.

TABLES

PEDESTAL TYPE — Insert table leg into the base plate. Lower table support bracket onto the leg.



BRACKET TABLE — Lift back of the table to the wall support. Place the bracket top over the wall support. Pull leg outward and lower table until it rests securely on the wall support and leg.

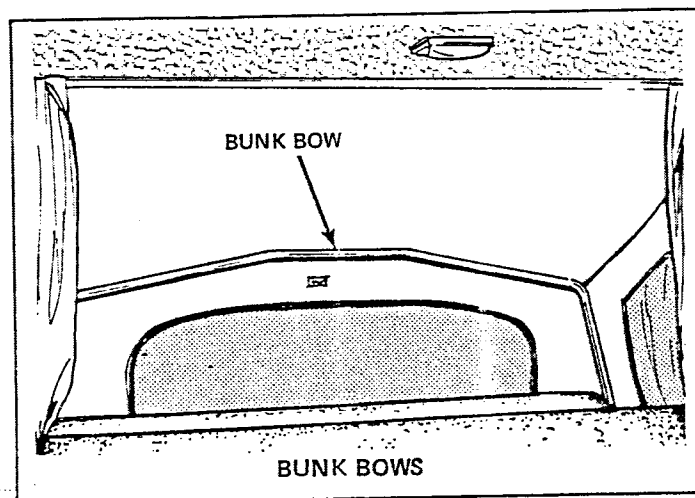


BEDS

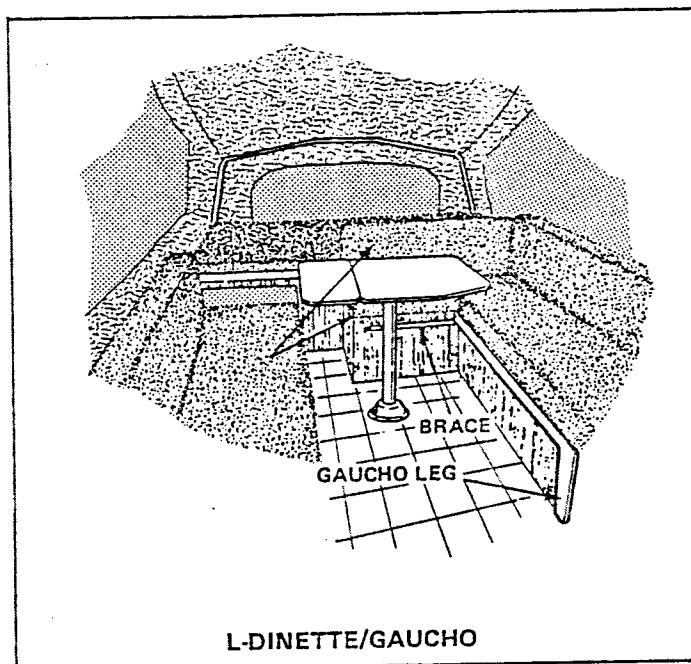
SLIDE OUT BUNKS — Remove the bunk support rods from the storage compartment (Figure 11). From the outside, grasp the bunk tray, lift slightly and pull outward until the bunk is completely extended. Insert one end of each rod into the sockets on the trailer frame (Figure 12). Slightly lift the edge of the bunks until the end of the support rod can be inserted into the tongue of the bunk

support plate. Do not allow the bunks to hang unsupported.

BUNK BOWS — Raise the bunk bows up and toward the unit end. Adjust the tent so its corners fit over the bunk bow corners. From outside the unit, reach beneath the canvas and pull the bunk bow toward the end of the unit until the vertical canvas is tight. Be sure to keep the corner of the bunk bow in the corner of the tent. Place the bow ends into the appropriate slot on the tray (Figure 13). Attach the shock cords to the nylon rollers or Velcro strips. Pull the vapor barrier skirt as far up the sides of the tent as possible, about 5". The skirt must be between the canvas and the mattress.



L-DINETTE — Lift pedestal table and remove leg. Remove center back and seat cushions. Slide the gauchio out to rest on its leg and the seat brace. Arrange long cushions on top of bed. Store folded table, leg and center cushions on floor under bed.



FACING DINETTE SEATS — Insert bracket table into the lower wall support. Lower table onto seat braces. Arrange cushions on top.

VINYL WINDOWS AND SCREENS — Unzip vinyl windows to permit ventilation. Roll vinyl up and secure in place with snap-end straps.

DRAPES AND CANVAS — Your unit will be equipped with drapes or canvas flaps for privacy. The canvas flaps can be rolled up and secured with snap-end straps. The drapes slide along a track.

CARE OF CUSHION COVERS — Vacuum cushion covers as needed. To remove grease spots, use commercial degreaser. For other stains, use a cool, damp cloth. Covers should be dry cleaned only.

CARE OF CURTAINS — Curtains may be machine washed and dried or dry cleaned.

CARE OF WOODWORK — Clean woodwork with regular household furniture polish. DO NOT use water to clean wooden surfaces. Scuffs may be covered with furniture wax and stain mixture. Scratches may be covered with Putty Stic.

CARE OF WARDROBE AND DRAWERS — Clean wooden surfaces with household furniture polish. Wash plastic surfaces with warm water and liquid soap.

CARE OF FLOORING — Sweep and damp mop vinyl floors occasionally.

BASIC SYSTEMS

GENERAL

The basic utility systems in your camping trailer can be classified under four titles — Electrical, Fresh Water, Drainage and LP Gas. This section outlines these systems, describing their operation, function and simple maintenance. It is not intended as a service guide. Your RV has been engineered and built to provide trouble-free operation, but should a problem arise, we recommend that you contact your authorized Coachmen dealer.

ELECTRICAL

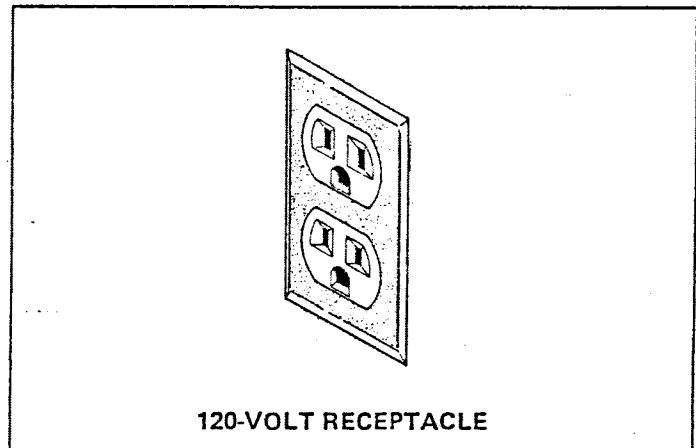
GENERAL

Your camping trailer may contain two separate electrical systems, providing you with power while you are camped or traveling. There is a 12-volt direct current system, similar to the one in automobiles, and a 120-volt alternating current system, similar to the one in homes. Your 120-volt system requires an external source of 120-volt electricity. This is provided either by a connection to a campsite or household receptacle. The 120-volt system should be used whenever a 120-volt hookup is available to reduce the 12-volt load on your tow vehicle's

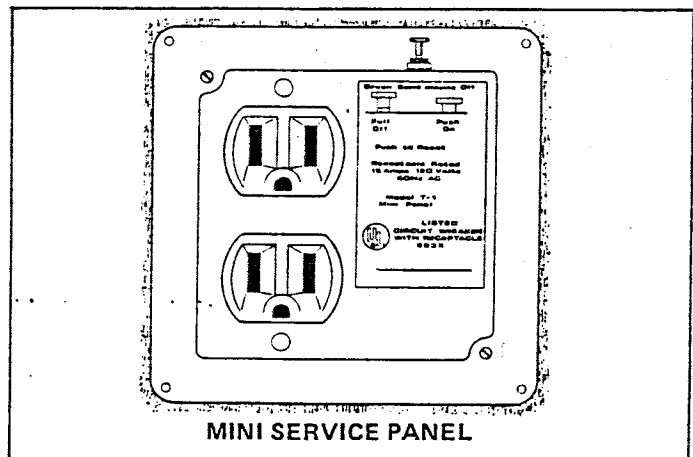
battery. Power is supplied by the Shoreline connection to the 120-volt receptacles. The 12-volt system is supplied by your automotive battery and is used when you are on the road or in campsites which do not provide 120-volt hookups. The interior lights in your camping trailer operate only from a 12-volt source. Energy is supplied by the automotive battery through the camper's electrical connection, or by the power converter, which changes 120-volt AC into 12-volt DC. Without the converter, the only 12-volt power source to your camper is from the tow vehicle's automotive battery, through the electrical connection.

120-VOLT SYSTEM

The 120-volt system supplies power for the refrigerator, power converter for the 12-volt system and the 120-volt receptacles located in the camping trailer, which are used to operate regular household appliances.



When you use the external 120-volt hookup, the electrical power source is connected directly into the main electrical service panel and is distributed through a circuit breaker.



SHORELINE CONNECTION — The Shoreline (Figure 14) is a heavy-duty cable with a 3-prong grounding plug on one end, permanently attached

FRESH WATER SYSTEMS

GENERAL

Fresh water for your unit is supplied either by the vehicle's fresh water tank or an external pressurized source. Both supply water to the sink.

CITY WATER

Connect a hose to a "city" pressurized water faucet and to the vehicle's water inlet (Figure 15). When using the city water hookup, the water tank is bypassed. You cannot fill the water tank through the city water inlet.

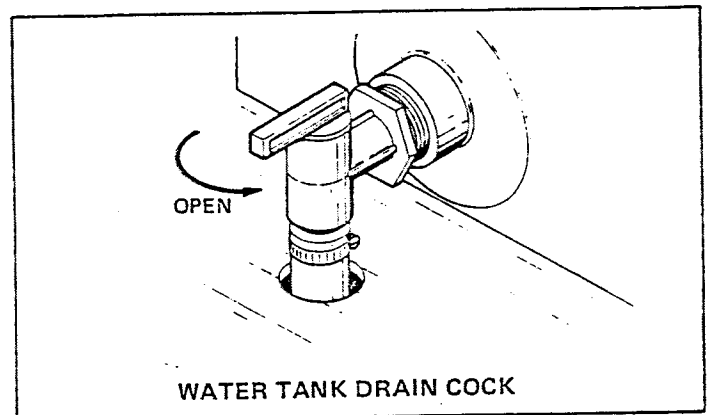
Although a common garden hose can be used to fill water tanks and to connect to city water, long time RV'ers recommend a hose specifically manufactured for this purpose.

CAUTION: In areas where city water pressure exceeds 60 psi., you should use a pressure regulator. Excessive water pressure may damage lines and connections. See your Coachmen dealer for further details.

WATER TANK

Open the gravity water fill by pulling out the fill spout (Figure 16). Use a hose or vessel to fill the water tank. Water will flow out the water fill when the tank is full.

SANITIZING WATER TANK — Sanitize your unit's water tank before initial use, after a period of nonuse, and whenever the tank is suspected of being contaminated. Open the drain cock and let the water drain out. When the tank is empty, close the drain cock. Mix 3 gallons of water with 3/4 cup of liquid household bleach. Pour solution into the tank through gravity water fill. Wait 3 hours. Drain and flush the tank with fresh, potable water. If a chlorine taste lingers, pour 1 quart of vinegar and 5 gallons of water into the tank. Wait several days before draining tank. Flush tank with fresh, potable water.



GALLEY HAND PUMP

Water to the galley hand pump-faucet is supplied by either the water tank or pressurized hookup. To draw water from the tank, pump the handle. Simply raise the handle for water when using a pressurized connection.

at the other end to the service panel. It can be pulled from its storage compartment through a hatch in the sidewall of your vehicle and connected to an external receptacle. Some campsites and trailer parks still have two-slot outlets. If it is necessary to use a three-to-two adapter, be certain its grounding wire is fastened securely to the outlet grounding screw. If in doubt, you may attach a No. 6-AWG copper wire to the frame of the vehicle and fasten it to an 8-inch copper or brass stake driven into the ground.

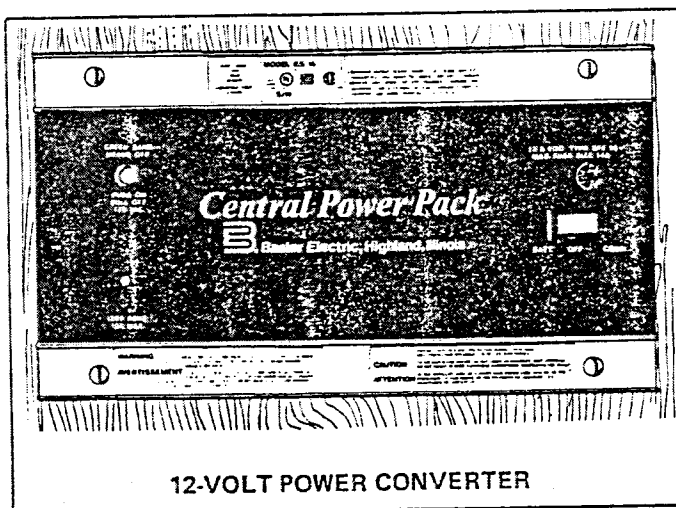
The 120-volt system, on some models, is protected by a circuit breaker. If the circuit breaker opens, unplug all appliances on the circuit, allow a short period for the breaker to cool, then reset the breaker. If the breaker continues to open, contact your Coachmen dealer.

12-VOLT SYSTEM

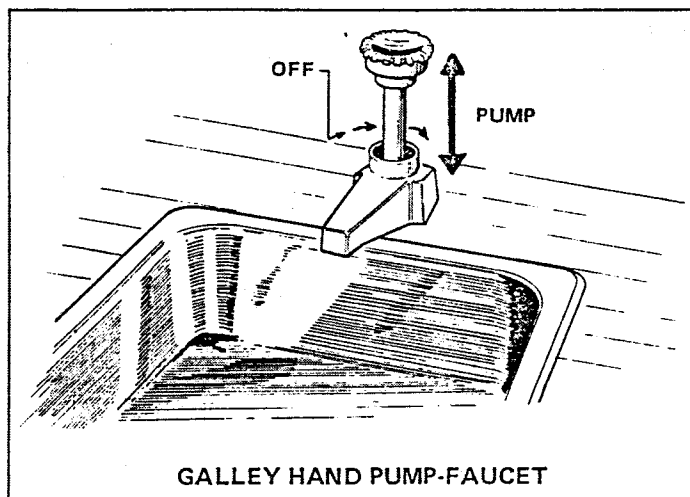
The 12-volt system, which includes the automotive battery plus the optional 12-volt converter, supplies power to the exterior and interior lights, porch light and refrigerator. The 12-volt energy is supplied by the automotive battery (through the pigtail connection) or the power converter.

The automotive battery and alternator supply 12-volt power to the engine ignition system, the dashboard lights and accessories, headlights, taillights, backup lights, clearance lights, turn signals and warning flasher lights.

CONVERTER — The power converter transforms 120-volt AC into 12-volt DC. The converter supplies power to all the 12-volt systems, except the refrigerator, when it is supplied by a 12-volt source. The 12-volt circuit is protected by a fuse in the converter. If the fuse breaks, turn off or unplug all appliances. Replace the broken fuse with one of the same ampere rating. If the fuse continues to break, contact your Coachmen dealer.



12-VOLT POWER CONVERTER



SINK

Clean the sink with non-abrasive cleanser. Stainless steel cleaner may be purchased at most grocery stores. ABS cleaner, such as Aqua K-7, may be purchased from your Coachmen dealer.

LEAKS

Traveling over bumpy or rough roads can cause pipe fittings to loosen. Check pipe fittings regularly for signs of leakage.

DRAINAGE SYSTEM

GENERAL

The Drainage system of your camping trailer consists of a sink drain and a gas check. The latter maintains a water barrier to prevent odors (caused by drain water) from entering the RV.

DRAINAGE

Remove protective cap from drain fixture (Figure 17) and attach a garden hose to the outlet. Some campsites will have septic service for the disposal of sink water at each site. If the site is not so equipped, collect water in a bucket or container and dispose of as required by the park rules. To avoid contaminating your water system, use different hoses for fresh and drain water. Hoses of different colors will help you to avoid interchanging. The same is true for buckets or vessels used for fresh water and drainage; paint or mark them to prevent contamination.

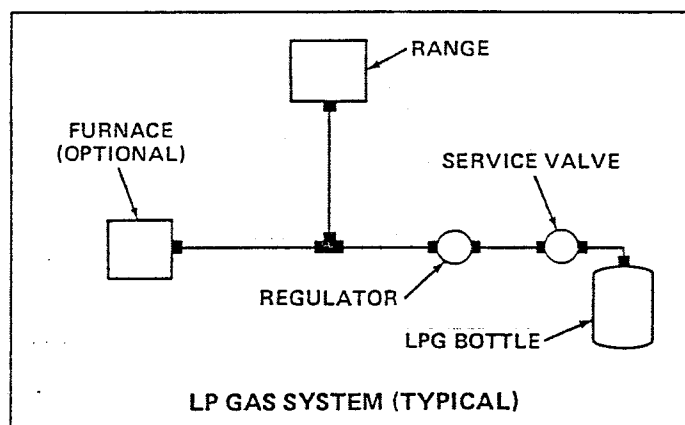
DRAIN CARE

Use clear water to clean exterior pipe surfaces. **DO NOT** use harsh drain cleaner chemicals or solvents in drains.

LP GAS SYSTEM

GENERAL

The Liquefied Petroleum (LP) Gas System in your unit furnishes fuel for heating and cooking. LP gas, a by-product of the petroleum refining process, provides a portable, efficient and inexpensive source of energy. It is stored in a bottle or bottles on the "A" frame of your unit. Under pressure in the bottle, the LP gas turns to vapor; it is the latter which burns. Each bottle has a 20% liquid level gauge which allows space in the bottle for vapor expansion. The high pressure of the vapor in the bottle is reduced in two stages through a regulator. The tank pressure will vary with temperature and altitude, but may be 100 to 250 pounds per square inch or more. It is reduced to about 12 psi in the first stage, then to about 6-1/4 ounces in the second stage (the 6-1/4 ounces per square inch also is expressed as 11 inches of water column). The LP gas is propane or a blend of propane and butane, depending upon your locale.



The LP gas system is designed and built to rigid standards and tested before leaving the factory. Your Coachmen dealer also tests the system prior to delivery to you. Except for simple maintenance and occasionally tightening a connection, you should take your unit to an authorized Coachmen dealer for LP gas problems. The LP bottle(s) should always be filled by an authorized LP supplier.

NOTE: Coachmen Industries is not responsible for personal injury or property damage resulting from improperly maintained LP gas appliances and systems.

LP gas burns readily and with intense heat. *With proper care and maintenance, it is safe and efficient.* However, there are certain characteristics of LP gas of which you should be aware. In its natural state, LP gas is odorless, but an additive gives it a distinctive garlic odor so that leaks may be readily detected.

WARNING: For your safety, if you smell gas:

1. Open all windows.
2. **DO NOT** touch electrical switches.
3. Extinguish any open flame.
4. Close Service valve.
5. Immediately call your gas supplier.

LP gas is heavier than air and tends to collect in low pockets. As LP gas settles into any closed area, it displaces air and thus could cause suffocation if not detected. It could also create a fire or explosion hazard.

Before using any LP gas appliance, read the respective manufacturer's instruction manual.

CLIMATE DIFFERENCES

The appliances will not function if the LP gas does not vaporize. Butane will not vaporize below 32 degrees F. (the freezing point of water), but propane will continue to vaporize down to 44 degrees below zero. Propane has become the main type of LP gas used in RV's in recent years. Your LP supplier will have the correct type or blend for your locale. If your travels will take you into an area where climate differs, ask your LP dealer for his recommendations. The names of LP suppliers can be found in the yellow pages of your telephone directory under "Gas-Liquefied Petroleum - Bottled & Bulk". Many campgrounds now have LP gas fill facilities as do some service stations.

To operate any LP gas appliance, the LP gas bottle's Service valve (Figure 18) must be OPEN. When first used, or after a refill, there may be some air in the gas lines which will escape when you open a range burner or similar LP gas valve. The air may extinguish your match or igniter the first time or two, before you get ignition. Remember, too, that when you close the bottle's Service valve some of the gas will remain in the lines. To completely bleed the lines of gas, CLOSE the bottle's Service valve and light a range burner to use up excess. When the flame burns out, turn the range burner OFF.

REGULATOR/CHANGEOVER

Each LP gas bottle, or pair of gas bottles, will have a regulator. Double 20 lb. bottles also have a manual changeover valve. With the manual valve, open only one bottle's Service valve. When the bottle is empty, close the Service valve and open the other bottle. You can check the volume of LP gas by weighing the bottle, comparing the known weight of an empty and filled bottle. The Tare (empty) Weight is stamped on the LP gas bottle handle.

Also stamped on the bottle is its Water Capacity in pounds. Multiply the Water Capacity by .42. The result will be the LP capacity in pounds (allowing for the 20% vapor space). Add the LP weight to the Tare Weight to get the total weight of a filled bottle.

EXAMPLE: If a 20-lb. bottle lists Tare Weight (TW) at 18 lbs. and Water Capacity (WC) at 48 lbs., the weight of the bottle when filled with LP to 80% of its total capacity will be 38 lbs. ($48 \times .42 = 20.16$ or 20 lbs. of LP. 18 lbs. plus 20 lbs. = 38 lbs.)

FILLING THE LP GAS BOTTLES

Before removing an LP gas bottle, be certain all burners and pilot lights are OFF. Close the Service valve and turn the gas line connector clockwise to disconnect. For a single bottle, loosen the nuts, and remove the bolts which hold the bottle to the angle supports (Figure 19). For double bottles, turn the spinner nut counterclockwise enough to raise the "T" bar from both bottle handles, and remove empty bottle. Transport empty LP gas bottles in an upright position.

Take your bottle(s) to an authorized LP supplier for filling. He will connect the fill nozzle to the gas line connector. The Service valve and the 20% liquid level gauge must be open. Filling should be stopped as soon as liquid appears at the liquid level gauge. Close the Service valve and the 20% liquid level gauge. DO NOT use a wrench to tighten the Service valve or the 20% gauge; they are designed to be closed leak-tight by hand. If you cannot hand-tighten properly, the valve probably needs repair or replacement.

CAUTION: Avoid overfilling by insisting that the LP gas bottle never be filled beyond the 20% liquid level. If the bottle is overfilled, have the LP gas dealer bleed out the excess. Overfilling does not allow sufficient space for the liquid to expand. This can produce excessive pressure which can cause LP gas leaks, creating a potential fire or explosion hazard. DO NOT smoke, strike a match or ignite a lighter when the LP gas bottle is being filled. A spark or flame could ignite fumes. Be certain all burner and pilot flames are out and the Service valve is closed when filling your tow vehicle's gasoline tank.

Reinstall a single bottle by placing it on the support angles; insert bolts through the holes in the base of the bottle and angle supports and tighten nuts. Reinstall a double bottle by lifting the "T" bar and setting the bottle on the bottom support plate. Tighten the spinner nut so the "T" bar holds both bottles in place. Reconnect the gas line and check for leaks.

LP GAS LINE CHECK

Always check the gas line connection after each refill and inspect other connections regularly, at least every 30 days or 5,000 miles of travel. To check, turn off all burners and pilot lights. Open all doors and windows. Open the LP gas bottle Service valve and use soapy water, a bubble solution or approved leak detector to test all line connections. Do not use products that contain ammonia or chlorine. Bubbles indicate a leak. Tighten the connections with two open end wrenches until bubbles stop. If leak persists, contact your Coachmen dealer.

REGULATOR PRESSURE

Check the LP gas regulator at the beginning of

each season or whenever a problem is indicated. Correct line pressure is 11 inches of water column. Your Coachmen dealer or LP gas supplier can perform this check.

LP BOTTLE CARE

After each trip, inspect the LP gas bottle. Sand off traces of rust and apply a rust preventive paint. Always use white paint, which reflects heat. When the LP gas system is not in use, the Service valve should be closed.

LP GAS REGULATOR FREEZE-UPS

LP gas regulator freeze-up is a problem RV owners can prevent if they are aware of its causes. Freeze-up is usually caused by one of three things: moisture in the bottle, an overfilled bottle, or a greater vapor withdrawal demand than the bottle can deliver at a particular temperature. Freeze-ups occur more frequently in cold weather when equipment can freeze and there is a lower rate of vaporization and a higher rate of demand.

Moisture can enter the bottle in the LP gas or through condensation if air is allowed into the bottle through an open valve. Avoid these conditions by using moisture-free LP gas and keeping all bottle valves closed during storage. If moisture is present, have the bottle purged by an authorized dealer and have him add anhydrous methanol; he will know the correct amount for the size of your bottle.

An overfilled bottle can allow liquid gas, instead of vapor, to flow through the regulator. This can result in erratic regulator delivery pressure, improper appliance operation or burner outage, and possible frosting of the regulator and LP gas lines. This can be avoided by following the previously cited precaution about overfilling.

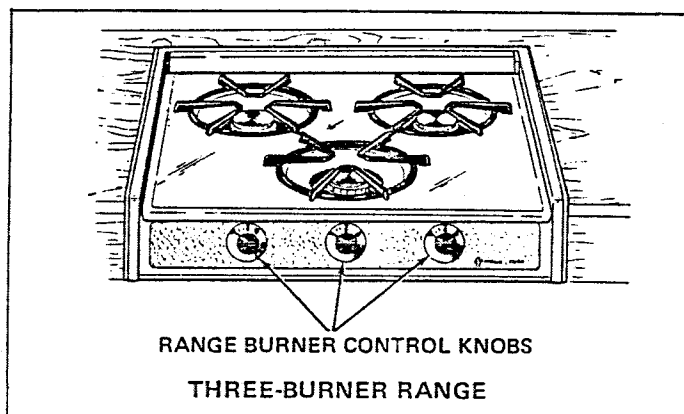
Liquid gas does not vaporize as rapidly in cold weather, so you may place too great a demand on your bottle's capabilities in certain conditions. This can cause a refrigeration effect resulting in frosting of the bottle and regulator. Check with your Coachmen dealer or LP supplier about the appliance demands which can be met by your bottle at various temperatures. Always have your LP supplier add anhydrous methanol before filling the bottle in cold weather.

APPLIANCES AND ACCESSORIES

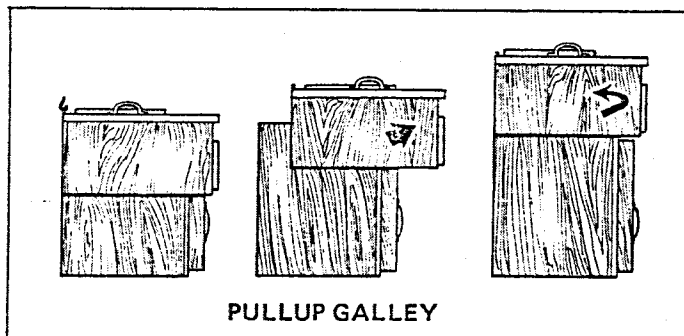
RANGE

GENERAL — Your Coachmen camping trailer will have a two or three-burner range, which is an LP gas appliance. Three-burner ranges are portable and can be used inside or outside the unit. Read the manufacturer's manual for details on the operation and care of the range.

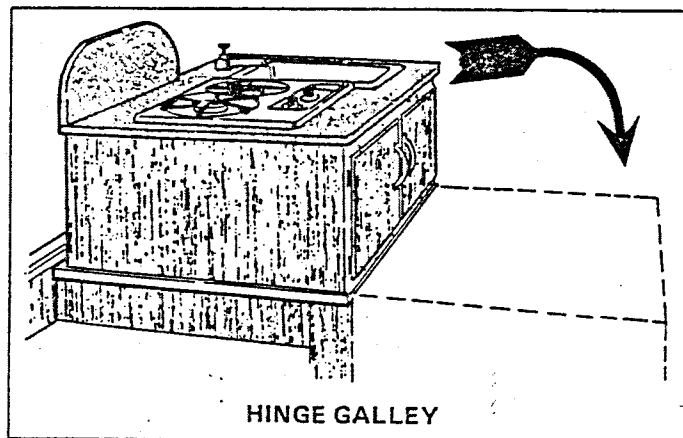
LIGHTING THE RANGE — Be certain the LP gas bottle Service valve is OPEN. Light a match and hold it close to the range burner, then turn the burner's control knob to full ON. When lit, adjust the burner flame with the control knob.



GALLEY SETUP — You may have a pullup or hinge galley. For the pullup, release safety gate hook located in the center of the counter, lift and pull forward then push into position.



The hinge galley simply swings down for travel and up for use.



CARE OF RANGE — Allow the range top to cool, then clean it with hot, soapy water. Use a damp cloth to clean chrome surfaces. Grease splatters, which may bake onto the surfaces, should be wiped off before they have time to harden. Use chrome polish to remove stubborn stains. Use a

toothpick to clean clogged burner orifices. DO NOT use metal objects, such as an ice pick or wire, to unclog burners. They may distort the opening and adversely affect burner operation.

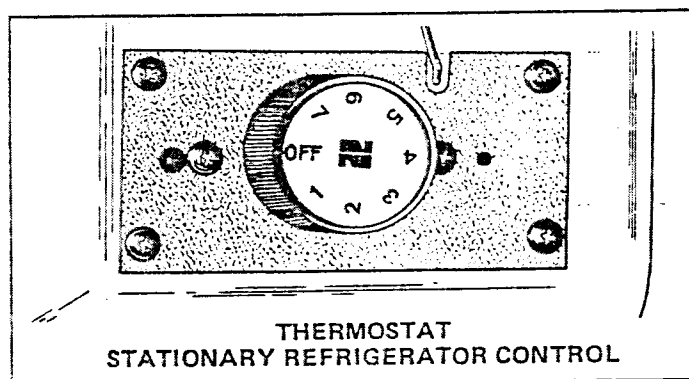
NOTE: Prolonged use of the range or furnace may cause moisture to form on the inside of the canvas and vinyl walls. Condensation may also form on the inside of the camper during heavy rain or when the outside temperature drops. This condition can be controlled by opening a window on the down-wind side of the camper or opening a roof vent.

REFRIGERATOR

GENERAL — Whenever possible, park the unit so the refrigerator will be opposite the sun. The refrigerator is powered by 12-volt or 120-volt electricity. Before starting on a trip, cool the refrigerator the night before on 120-volt electricity.

Your refrigerator is either a stationary or portable model.

STATIONARY MODEL — Electricity to power the refrigerator is supplied through the Shoreline connection or a 12-volt battery (either an automotive or RV battery). The refrigerator will change automatically to the power source in use. Use the Shoreline connection whenever possible to save your battery. Your refrigerator will have a control knob at the upper back side of the main compartment.

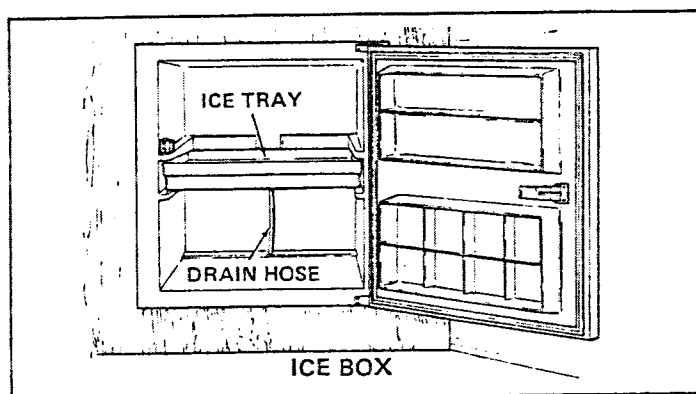


To test, plug Shoreline in and turn thermostat to 3. Wait 5 minutes. Place your hand on the inside left rear corner of the freezer. If it feels cool, the unit is operating properly. Close the door and allow the unit to complete the cycle, this indicates the thermostat is working. Unplug the Shoreline and open the refrigerator door for the inside air to warm. The motor will start, indicating the refrigerator is operating on DC electricity. Close the refrigerator door and wait 10 to 20 minutes to complete the cycle. If the inside temperature is cool, the refrigerator is functioning properly.

Your refrigerator will have a thermostat control knob ranging from OFF to 5 or OFF to 7. In either case, the highest number is the coldest setting. Keep the thermostat at the lowest setting which will adequately refrigerate the food, usually at 3.

ICE BOX

Place ice in the top tray. Make sure the hose, located near the back of the tray, is not bent or clogged. Water drains through this hose and onto the ground as the ice melts.



NOTE: Keep items to be stored in your RV refrigerator or ice box in your home refrigerator or freezer until you are ready to leave. This will reduce the cooling load on your RV refrigerator or ice box and help keep perishable foods fresh longer. Always store food in sealable containers or suitable wrapping. During travel, use the door latch.

CARE OF REFRIGERATOR AND ICE BOX — Remove food and ice after each trip. Clean interior with warm water and liquid dishsoap. Wipe dry with soft, dry cloth. DO NOT use abrasive cleaning material, it will scratch interior surfaces. Prop the door open during periods of nonuse.

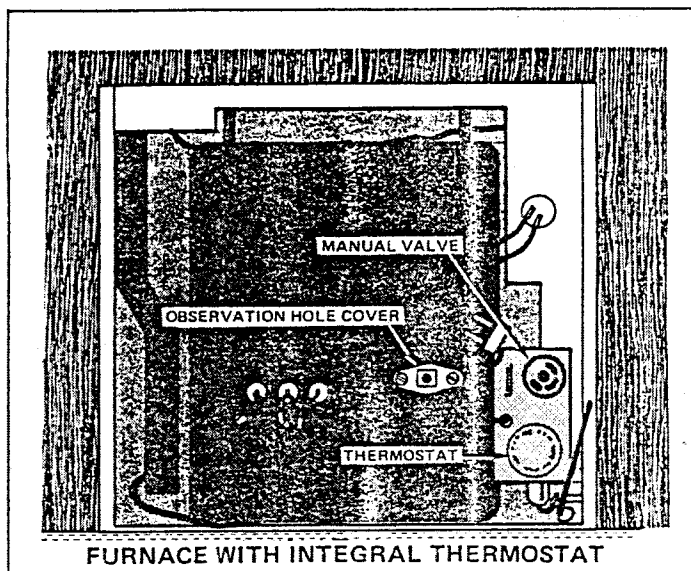
To defrost refrigerator freezer, remove frozen food and ice. Turn off the thermostat. Place a pan of hot water inside the compartment to speed up the defrosting process. Dry the interior with a clean cloth.

FURNACE

The RV furnace is an LP gas appliance. It is a gravity model controlled by a temperature control dial. Heat is discharged into the unit directly through the furnace grille.

FURNACE IGNITION — When igniting the furnace, be certain the LP gas bottle Service valve is OPEN. Remove the furnace access door and the observation hole cover (held by thumbscrews). Push IN on manual valve and turn to OFF. Wait 5 minutes before lighting. Turn manual valve to PILOT. Hold lighted match through observation hole and under pilot burner and push manual valve IN. Hold valve until pilot remains lit (about 45-seconds). Install observation hole cover securely. Turn manual valve to ON. Set thermostat for desired temperature.

FURNACE SHUT-DOWN — To shut down, turn manual valve to PILOT position, push IN and turn to OFF position.



NOTE: If the furnace does NOT light after the third attempt, turn the manual valve to OFF and contact your Coachmen dealer. Do NOT attempt to repair or adjust the furnace yourself.

CARE OF FURNACE — The furnace requires only routine cleaning. Soot, which may form on the inside of the combustion chamber, may be removed with a vacuum sweeper. Check the furnace Inlet/Exhaust Cover on the outside of your unit (Figure 21) periodically to be certain it is free of objects which might block the openings.

NOTE: Portable fuel-burning heating appliances should not be used for comfort heating in the living area of your Coachmen unit.

BOAT RACK

If your unit has a boat rack, the weight of the boat is not to exceed 135 lbs. Place the boat, with the bow facing forward, upside down on the boat rack and lash down securely. DO NOT raise the roof with the boat on the rack.

MAINTENANCE

GENERAL

Recreational vehicle owners are noted for the pride they take in the appearance of their units. Proper maintenance will do more than keep your Coachmen unit looking nice. It can help ensure trouble-free operation and maximum efficiency of the various appliances and components. Failure to properly maintain the vehicle or its components also may constitute a breach in your warranty obligations. Negligence, misuse or installation of un-

authorized equipment could affect the operation of your unit and may void your warranty. See the various manufacturer's manuals for specific maintenance instructions.

CANVAS

To condition the canvas prior to your first trip, set up the camper and spray with water. Allow the canvas to dry and then spray again. This will expand the thread inside the stitch holes. Always ventilate and dry the canvas, with bows and braces in place, as soon as possible after each exposure to moisture.

After every trip, wash dust and dirt, bird and tree droppings, insects and other foreign material from the exterior canvas surfaces. These substances can destroy the canvas' water repellency. Use warm water and a soft bristle brush to remove stubborn stains. Rinse canvas with cool water. Allow the canvas to dry completely before lowering. Mend tears and holes with patching material or cement. Leaks in canvas seams can be repaired by spraying the seam with a quality water repellent, available from your Coachmen dealer.

CAUTION: Use of sprays (hair, insect, deodorant, etc.) near fabric can destroy fabric finish. NEVER allow spray to come in contact with tent fabric.

VINYL

Your camping trailer may have a vinyl coated fabric on the exterior. Vinyl coated fabric cannot "breathe": condensation may sometimes form on the inside fabric. To avoid, open the zippered windows slightly to ventilate the interior of the unit. (Canvas does breathe: moisture causes fabric threads to swell and thus repel water).

Vinyl coated fabric can be cleaned (on the vinyl side only) with a mild detergent solution and sponge. Do not rinse the detergent solution over any canvas portion of the camping trailer. Vinyl top cleaner may be used to remove stubborn stains. Leaks in vinyl coated fabric seams can be repaired with a cake of beeswax rubbed into the needle holes from the outside. Beeswax is usually available at local hardware stores.

BODY

Wash dust and dirt, road tar, bird and tree droppings, insects and other foreign material from exterior surfaces. Use a mild soap in cold or lukewarm water. Apply automotive type wax at least once a year.

CAUTION: To avoid marring body surfaces, DO NOT use abrasive cleaning compound or cloth; DO NOT wipe the surface with a dry cloth; DO NOT wash or wax your unit in the hot sun, wait until the surfaces have cooled. Wait 30 days after purchase before waxing your new unit.

FRAME

Inspect the frame periodically. Remove dirt and rust and apply rust preventive paint.

ELECTRIC BRAKES

Inspect and adjust brake drums, lining and shoes at the beginning of each camping season or before an extended trip.

WHEEL BEARINGS

Check wheel bearing lubrication at the beginning of each camping season or before an extended trip. Inner and outer bearings should be packed with a lithium-based, multi-purpose, extreme pressure NLGI #2 grease. Apply a modest amount of grease directly to the bearing. Work it in until all rolling elements are coated with a layer of the lubricant. A little grease may be applied to the hub cavity. Check for damage to rims and hubs.

CAUTION: DO NOT overfill the hub cavity with grease. Excessively packed wheel bearings may overheat, depriving the bearings of lubrication and causing premature failure.

CRANK LIFT SYSTEM

Periodically, the telescoping arms of the crank lift system should be lubricated with silicone spray.

STORAGE

GENERAL

You should perform the following procedures if you will not be using your unit for an extended period.

LP GAS SYSTEM

Close the LP gas Service valve. Extinguish all pilots and close all LP gas valves. Light a range burner to consume any gas remaining in the lines. When the flame burns out, turn the range burner OFF.

WATER TANK

Open the water tank drain cock and empty tank. Close the drain cock when the tank is empty.

ELECTRICAL SYSTEM

Turn off the circuit breaker at the service box.

EXTERIOR

Store your unit in a garage or other shelter, if possible, or cover with tarpaulin or plastic.

Do not allow snow to collect on the roof.

If you will not be using your trailer for an extended period, block it up to prevent tire damage.

WINTERIZATION

GENERAL

You should make special preparations for storing your unit in winter. All systems, components and appliances should be inspected and repaired prior to storage. Winterize the unit before removing the batteries.

Drain the fresh water system as described in STORAGE section, then pour 6 gallons of approved, non-toxic RV antifreeze into the gravity water fill. This will allow you to winterize the fresh water and drainage systems. Follow the checklist below:

CAUTION: DO NOT use automotive antifreeze in the fresh water system; it is poisonous.

FRESH WATER SYSTEM can be winterized by briefly opening the faucet and pumping water, with the sink drain closed. Close faucet and stop pumping when antifreeze pours out.

DRAINAGE SYSTEM should be winterized by removing the sink drain plug to allow antifreeze to circulate through the line. Pour an additional 2 cups of RV antifreeze into each drain.

LP GAS system should be prepared as described in the STORAGE section. The regulator also should be covered to keep moisture out of the vent. LP gas bottles should have anhydrous methanol added by an LP gas supplier.

DRAPES should be removed and washed or dry cleaned.

COUNTERTOPS AND CABINETS should be cleaned.

REFRIGERATOR/ICE BOX should be cleaned and the door propped open. Cover exterior panels.

FURNACE should be cleaned and exterior vents covered.

RANGE should be cleaned.

BODY should be cleaned and waxed; locks and hinges oiled, and snow accumulation should be removed with a long-handled broom.

UNIT should be placed on wooden blocks or jackstands on a firm level surface. Tires should be removed, partly deflated, hung on a wall, and covered to protect them from sunlight.

FIRE SAFETY

Prevention is the best form of fire safety. Follow the instructions previously listed for the care, maintenance and operation of the various appliances in your vehicle. Make certain everyone in your party is familiar with emergency features of the unit, the locations of exits and the location and operation of fire extinguishers. A chemical fire extinguisher has been furnished with your unit.

Follow the same rules of prevention that you would at home. DO NOT smoke in bed. DO NOT

overload the electrical wiring. DO NOT use matches, candles or lighters to look into dark closets or drawers. DO NOT leave food cooking unattended. DO NOT permit children to play with the controls of LP gas or electrical appliances. DO NOT store flammable liquids inside your unit.

If a fire does start, get all members of your party outside. If it is a small fire, use the fire extinguisher. If the fire cannot be extinguished quickly, GET OUT. Close the LP gas Service valve and move a safe distance from the vehicle. Call the fire department. DO NOT use water on the fire and DO NOT re-enter the vehicle until officials declare it safe to do so.

VISITING CANADA OR MEXICO

GENERAL

Passports or visas are not required for entry into CANADA or MEXICO. However, tourist cards are necessary for MEXICO if you will be staying more than 72 hours or travel farther than 40 miles from the border. Cards can be obtained at the port of entry or from a Mexican consulate. You should carry your birth certificate, voter's registration card, baptismal certificate or similar proof of identity when entering either country. Naturalized U.S. citizens should carry their naturalization papers or other proof of citizenship. Persons under 18 years of age should carry a notarized letter from their parents or guardians giving them permission to travel in CANADA or MEXICO.

The information in this section is general in nature and subject to change by the Canadian or Mexican government. For specific information, including rules for re-entering the U.S., as well as points of interest and campsites, contact the consulate nearest the point at which you plan to enter the country.

VEHICLES

No special driver's license or permit is necessary in either country, but renew your license if it has or will expire during the trip. Proof of vehicle ownership is required at the border. If you are using someone else's unit, you should have a notarized letter authorizing its use. MEXICO requires a vehicle permit for every self-propelled vehicle. The permit can only be obtained from Mexican customs (Aduana) offices upon presentation of tourist card, vehicle registration, and title or notarized statement from owner.

CANADA requires a Canadian Non-Residential Interprovincial Motor Vehicle Liability Insurance card, which is only available from U.S. agents. All provinces in CANADA require evidence of financial responsibility if visitors are involved in an accident. Limits vary from province to province. Contact your insurance agent for details. Your insurance policy is NOT valid in MEXICO. Temporary insurance must be purchased from Mexican companies whose offices are located near the border.

CB RADIO

CB radio operation in CANADA requires a temporary license, which can be obtained by writing Regional Director, Telecommunications Regulation Branch, Department of Communications, 20th Floor, 2085 Union Avenue, Montreal, Quebec H3A 2C3, Canada. MEXICO currently prohibits the use of CB radios.

HUNTING AND FISHING

Each province has its own laws and license requirements. You must provide a written description and the serial number of each gun at the border. Revolvers, pistols and fully-automatic firearms are prohibited in CANADA. A license must be obtained from the province in which you intend to hunt or fish. Further information can be obtained by writing the Department of Lands and Forests, Wildlife Branch, in the province you intend to visit. Hunting and fishing laws in MEXICO are extremely complicated. Request further information from Secretaria de Comunicaciones, Estados Unidos Mexicanos, Mexico DF.

DOGS AND CATS

CANADA requires a certificate, signed by a licensed veterinarian in the U.S. or CANADA, attesting that a dog has been vaccinated for rabies in the past 12 months. The certificate must contain a description of the dog and date of vaccination. Puppies under 3 months old need no certificate. There is no restriction on the entry of healthy cats.

A certificate, signed by a licensed veterinarian, describing the pet and attesting that it has had a rabies shot in the past 6 months, is required in MEXICO. A fee is charged for the required verification of the certificate by a Mexican consulate.

COACHMEN WARRANTY

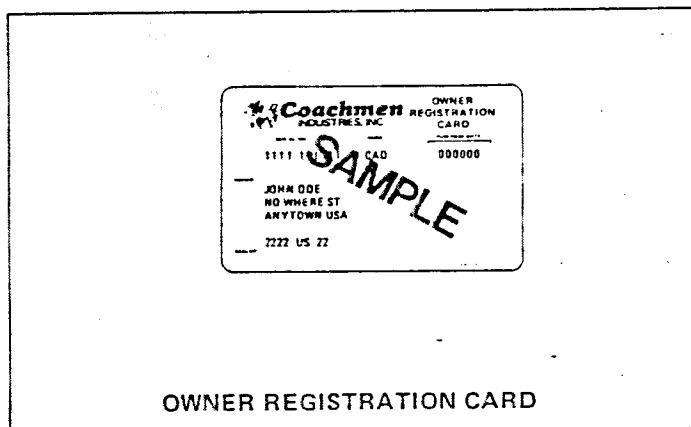
GENERAL — Every Coachmen product is backed by our position as an RV industry leader, achieved through years of experience in producing units noted for their quality and dependability. Our one-year limited warranty, a pioneer in the RV industry, demonstrates our confidence in Coachmen products and is a commitment to customers' continued satisfaction.

Every effort has been made to provide you with a safe, dependable recreational vehicle. Your Coachmen RV complies with applicable federal and state regulations and the requirements of ANSI A119.2, the nationally-recognized "Standard for Recreational Vehicles — Installation of Plumbing, Heating and Electrical Systems". The Recreation Vehicle Industry Association (RVIA) periodically inspects Coachmen production and assists in maintaining strict compliance with installation and safety standards for those systems. Similar periodic inspections are made by representatives of the Canadian Standards Association (CSA) and various states.

You, the owner, must perform periodic inspections of the systems and provide a program of preventive maintenance as described in the Owner's Manual and instruction booklets.

WARRANTY SERVICE — Coachmen recommends that warranty service be performed by the authorized dealer from whom you purchased your RV because of the dealer's continued and personal interest in your satisfaction. But if you are traveling or in the event that you move, service under the Coachmen warranty will be performed by any authorized Coachmen dealer in the United States or Canada. Whenever possible, make an appointment to avoid unnecessary delays.

Always carry your Owner Registration Card, which must be presented to obtain warranty service (carry your Temporary Owner Registration until you receive the plastic card from Coachmen). The card is proof of purchase and provides the date of retail sale, which are necessary to determine warrantability. If you cannot locate an authorized dealer, contact Coachmen Service, P.O. Box 1000, Middlebury, Indiana 46540, telephone (219) 825-8239.



Warranty Period — The warranty period shall be for 12 months and shall begin on the date the recreational vehicle is delivered to the first retail purchaser.

Who Is Covered — The first retail purchaser, provided terms of the warranty are met.

What Is Covered — Coachmen warrants to owners that an authorized Coachmen dealer or Coachmen Service Center will make repairs made necessary by defects in material or workmanship during the warranty period. Such repairs will be made without charge for parts and labor to the owner.

What Is Not Covered — The Coachmen warranty does not cover tires, tubes, batteries or optional generators, repairs or adjustments required because of neglect, accident, misuse, failure to follow service and use instructions, normal wear and/or exposure, unauthorized repairs or unauthorized modifications to any part of the systems or body that might cause defective performance. Coachmen does not assume responsibility for loss of use of the recreational vehicle, loss of time, inconvenience or expense due to equipment failures (refer to the warranty statement for other exclusions and limitations).

Other Warranties — Be certain to complete and submit to the appropriate manufacturers the warranty forms for tires, tubes, batteries, and optional generators, which are not covered by the Coachmen RV Limited Warranty. If service or parts are required for these products, refer to the furnished list of factory-authorized service centers. If the list is not available, write or call the manufacturer concerned to obtain the location of the nearest authorized service center.

OWNER RELATIONS

Owner's satisfaction and goodwill are of primary concern to Coachmen. We recognize that our continued success as a leading manufacturer of recreational vehicles depends upon your complete confidence in our products and service. A pleasant and effective relationship through our dealers is as important as maintaining the technical excellence of our product. Your authorized Coachmen dealer will assist you in providing service, maintenance, selection of options and instructions concerning the operation of your recreational vehicle.

Occasionally, a warranty or service matter may not be handled to your satisfaction. Often it is the result of a misunderstanding and can be resolved at the dealer level. Discuss the situation with the dealership management. If you cannot find satisfaction at the dealer level, we invite you to contact Coachmen Owner Relations Department, where we will make every effort possible to provide an agreeable solution. In most instances, we will eventually refer you back to the local dealer with our recommendations.

Write or telephone Owner Relations at:
Coachmen Service
P.O. Box 1000
Middlebury, Indiana 46540
Telephone: 219/825-8239
Attn: Owner Relations Department

EMERGENCY CONTACTS

DOCTOR	NAME	_____	NAME	_____
	ADDRESS	_____	ADDRESS	_____
	PHONE	(AC)	PHONE	(AC)
RELATIVE	NAME	_____	NAME	_____
	ADDRESS	_____	ADDRESS	_____
	PHONE	(AC)	PHONE	(AC)
NEIGHBOR	NAME	_____	NAME	_____
	ADDRESS	_____	ADDRESS	_____
	PHONE	(AC)	PHONE	(AC)
POLICE	PHONE	(AC)	PHONE	(AC)
FIRE	PHONE	(AC)	PHONE	(AC)
INSURANCE AGENT	NAME	_____	NAME	_____
	ADDRESS	_____	ADDRESS	_____
	PHONE	(AC)	PHONE	(AC)

TRAVEL RECORD

DATE	PLACE	ODOMETER BEFORE	READING ARRIVAL	TOTAL MILES	NOTES	EXPENSES

[illegible]

APPLIANCE IDENTIFICATION FORM

Should your unit or one of the appliances require warranty service, you will have to identify the manufacturer, model designator and serial number. Fill in this form as soon as possible. It will help you meet our identification requirement. Depending on your unit, certain items listed below may not be offered as either optional and/or standard. Most of this information can be found on the Recreational Vehicle Data Card attached to the inside of one of the kitchen cabinet doors.

EQUIPMENT	MANUFACTURER	MODEL DESIGNATOR	SERIAL NUMBER
Camping Trailer	COACHMEN		
Furnace			
Range			
Converter			
Refrigerator			
Door Key			
Exterior Storage Compartment Keys			

SPECIFICATIONS

PIGTAIL COLOR CODE

Green	—	Clearance & Taillights
Brown	—	Right Turn Light & Stop
Red	—	Left Turn Light & Stop
Blue	—	Brake
White	—	Ground (Unfused)
Orange	—	Ceiling Light & 12V Accessory

A special pigtail adapter is available from your Coachmen dealer if your tow vehicle is equipped with stop lights that are independent of the turn signal lights.

LIGHT BULBS

Porch Light	—	1003
Clearance	—	57
Turn & Stop	—	1157
Interior	—	1141

FUSES

Interior	—	10 amp Fuse or 6 amp Fuse
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TIRES

4.80 x 8 (B) Load Range 60 psi
5.70 x 8 (C) Load Range 75 psi
20.5 x 8 x 10 (C) Load Range 50 psi
4.80 x 12 (B) Load Range 60 psi
5.30 x 12 (C) Load Range 80 psi
B78 x 13 (B) Load Range 32 psi

HITCH BALL HEIGHT

HITCH BALL HEIGHT	BALL DIA.
130 F Sunlite — 14-1/2"	2"
160 S Sunlite — 15-1/4"	2"
160 XL Sunlite — 15-1/2"	2"
180 XL Sunlite — 15-1/2"	2"
170 D Sun Sprite — 15-1/2"	2"
190 DD Sun Haven — 16-1/2"	2"
210 D Sun Classic — 16-1/2"	2"

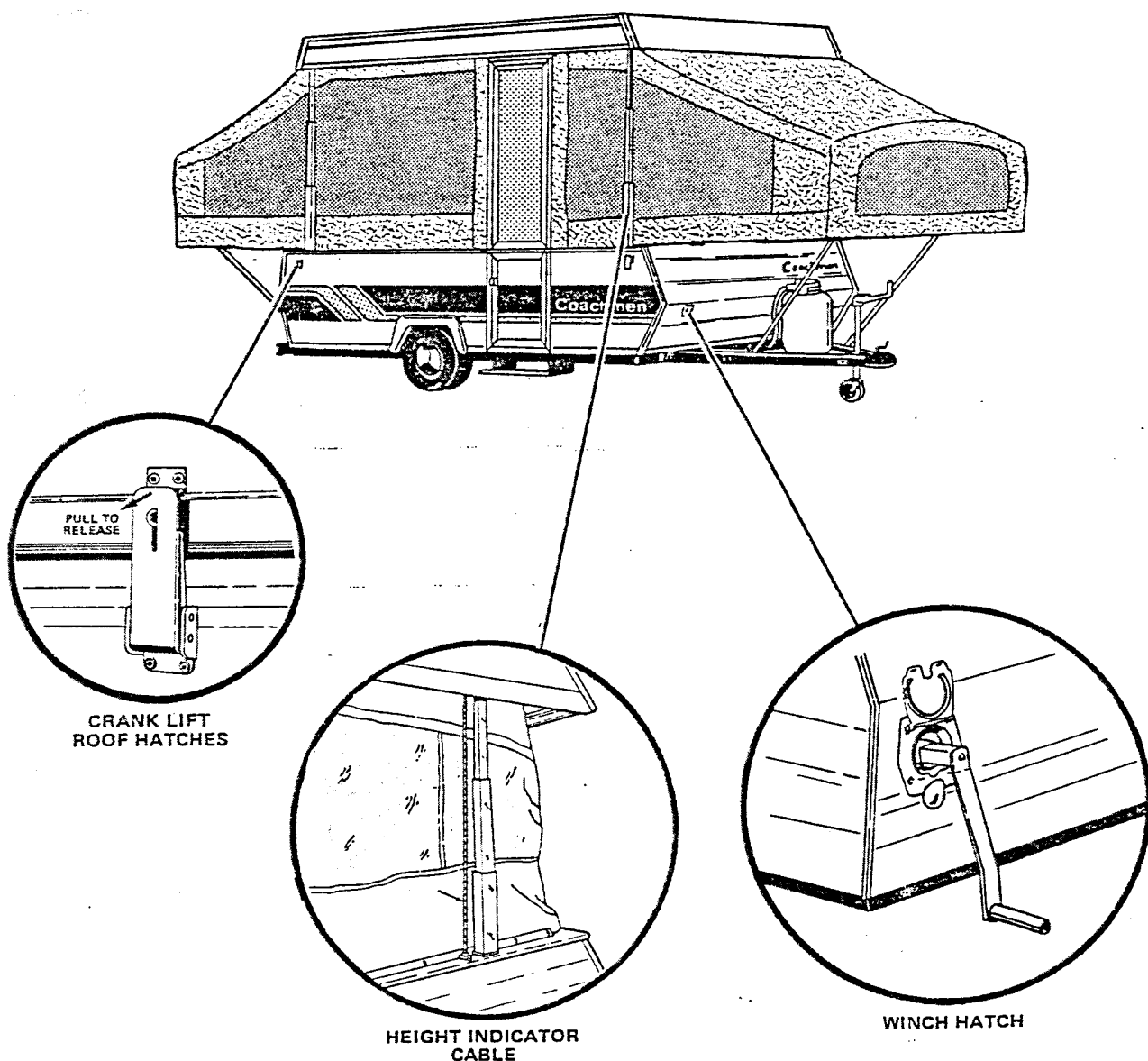
MISCELLANEOUS — See the advertising brochure for the exterior dimensions, weight ratings and wheel/tire ratings which pertain to your unit.

CRANK LIFT SYSTEM

To raise the roof, release all four roof latches. Open the winch hatch. Remove the crank from its storage area and attach it to the shaft. Turn the crank clockwise until the roof height indicator cable is tight. Remove the handle and close the hatch.

Before lowering the roof, refer to "Pre-Travel Check List" on pages 4-5.

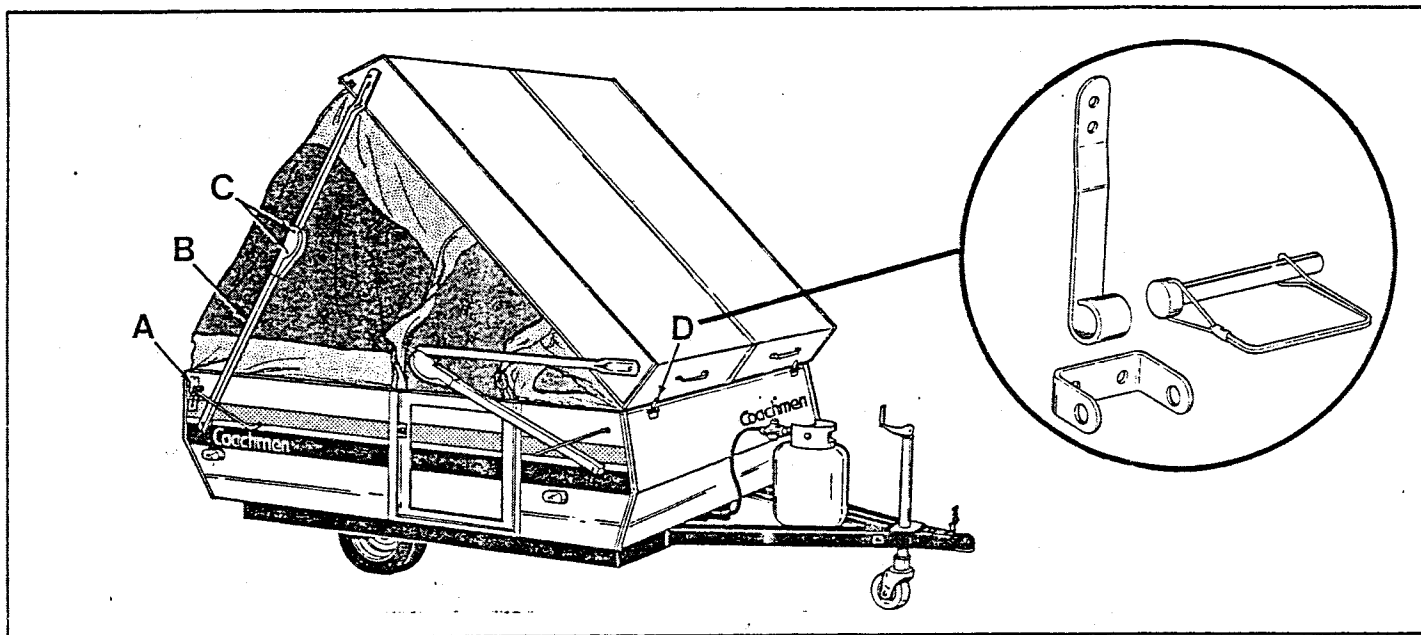
To lower the roof, crank winch counterclockwise. Stop cranking when roof is one foot from camper body and tuck canvas into unit. Continue cranking until roof is 6" from body; tuck remaining canvas into unit, then finish lowering roof. Secure roof with latches.



COACHMEN 130F SUNLITE

Remove the retainer pins and awning bows from inside the door. Release rear roof latches (A) on each side. Use rear roof handles to raise the roof

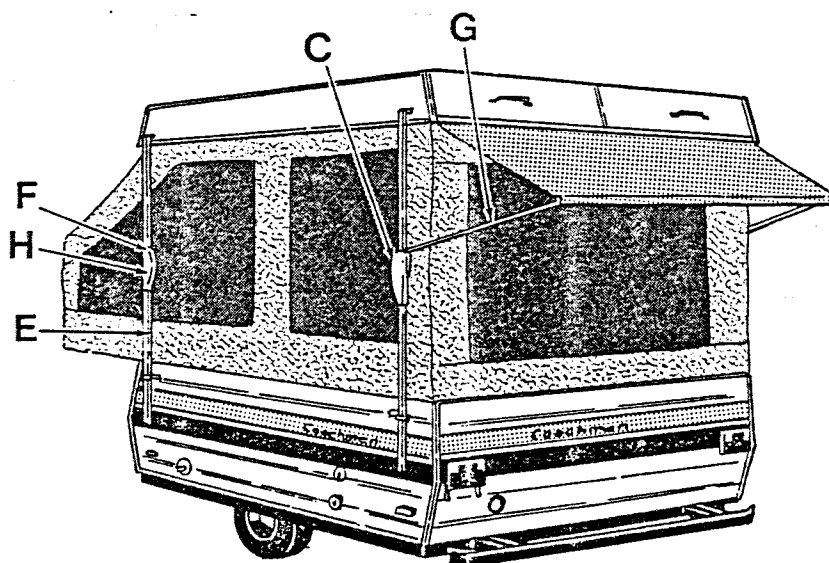
until the lifter arms (B) are fully extended. Install double retainer pins into the holes of the elbows (C). Remove pins from front pivot bracket (D).



Raise the front portion of the roof until lifter arms (E) are fully extended. Install retainer pins into holes (F) of the elbows. Insert curved end of bows into the awning tube (G) and install retainer pins through holes of bows and elbows (C).

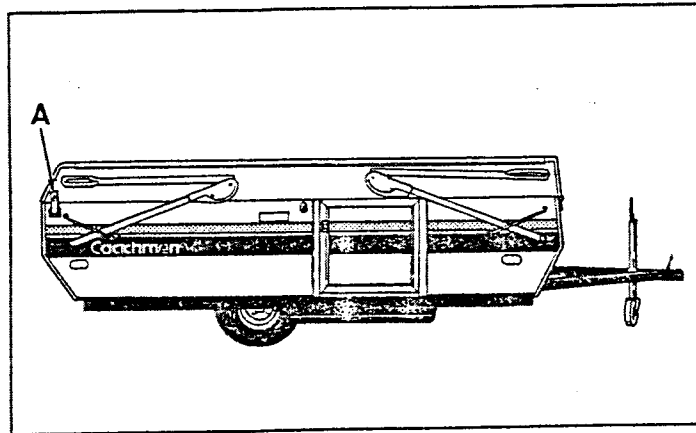
Before lowering the roof, refer to "Pre-Travel Check List" on pages 4-5.

TAKE DOWN — To take down the roof, remove the retainer pins and awning bows, bend the arms and use the front roof handles to lower roof. Repeat procedure for the rear. To lower roof alone, bend one front lifter arm and install retainer pin into bottom hole (H). Do the same for the remaining front arm. Lower roof using roof handles, remove pins. Repeat procedure for the rear. Place retainer pins into appropriate storage areas.

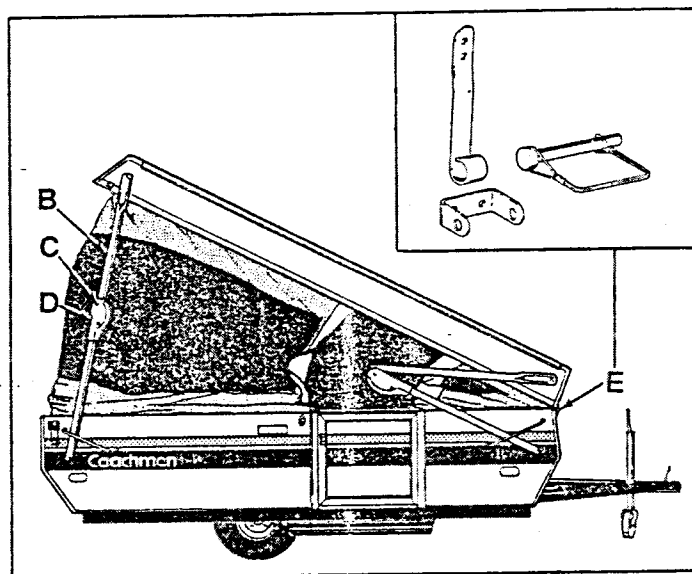


MULTIPLEX LIFTER SYSTEM

Remove the retainer pins from storage. Unlatch rear roof latches (A) on each side.



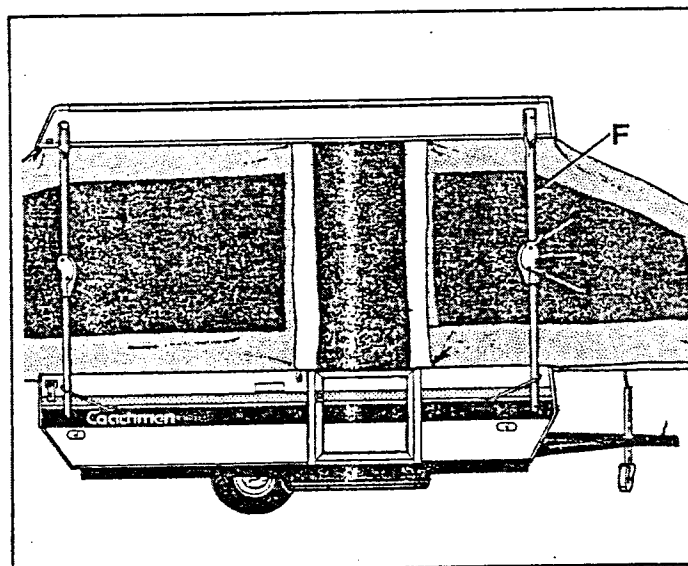
Use rear roof handles to raise roof until the lifter arms (B) are completely extended. Install retainer pins into the top hole (C) of the elbows (D). Remove pins from front pivot bracket (E).



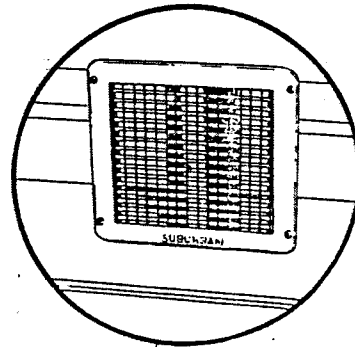
Raise the front portion of the roof until lifter arms (F) are fully extended. Place retainer pins into the top hole (G) of the elbow (H).

Before lowering the roof, refer to "Pre-Travel Check List" on pages 4-5.

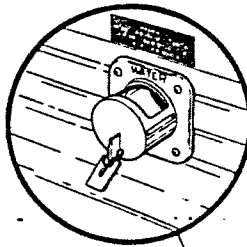
TAKE DOWN — To take down the roof, remove the retainer pins, bend the arms and use front roof handles to lower roof. Repeat procedure for the rear. To lower roof alone, bend one front roof lifter arm and install retainer pin into bottom hole (I). Do the same for the remaining front arm. Lower roof using roof handles, remove pins from bottom holes (I), one at a time, and secure roof to brackets (E) with pins. Repeat procedure for the rear. Place retainer pins into appropriate storage areas.



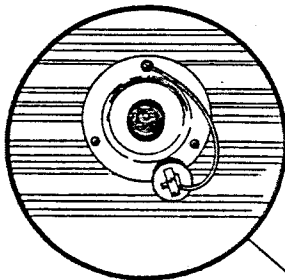
FURNACE INLET/EXHAUST
FIGURE 21



GRAVITY WATER FILL
FIGURE 16



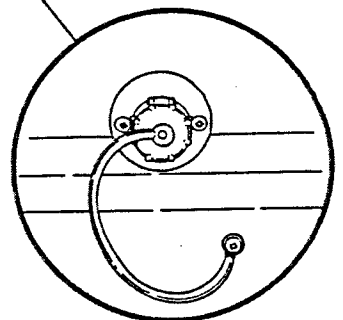
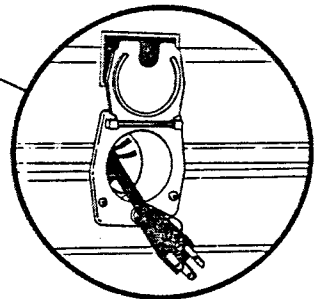
CITY WATER FILL
FIGURE 15



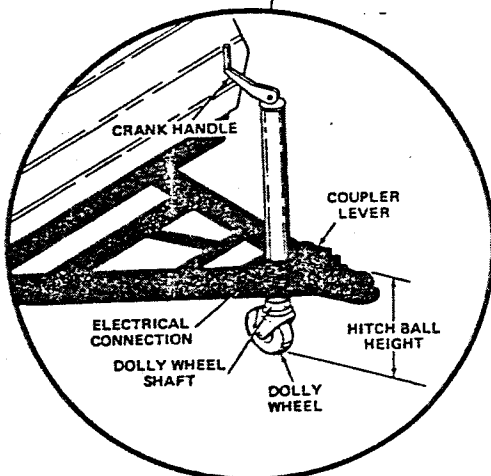
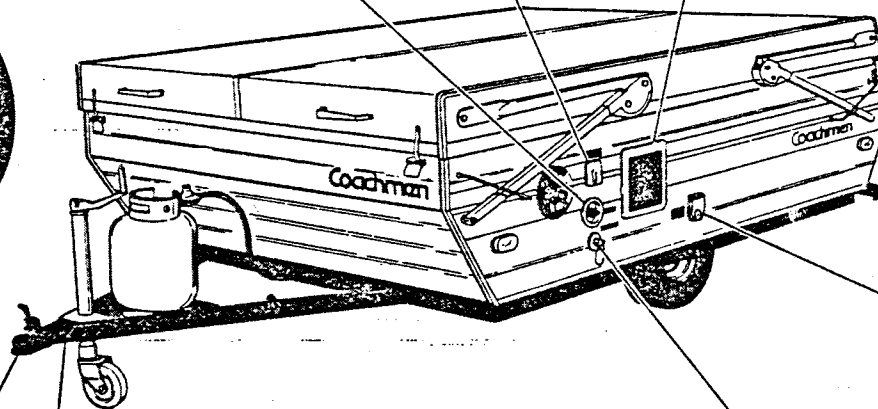
COUPLER ADJUSTMENT
NUT
FIGURE 2



SHORELINE
FIGURE 14



DRAIN FIXTURE CAP
FIGURE 17



ELECTRIC BRAKE
COUPLER
FIGURE 1

YOU'VE CHOSEN COACHMEN ALL-AROUND VALUE!

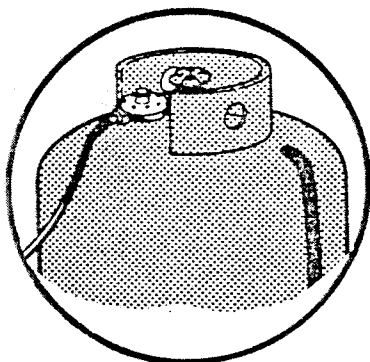
As a new Coachmen owner, you've made a sensible choice among recreational vehicles. Your Coachmen is built with care and craftsmanship, and your choice of Coachmen is backed by . . .

- Coachmen Industries, Inc., the world's largest full-line manufacturer of recreational vehicles.
- A coast-to-coast network of happy-to-serve-you dealers.
- Coachmen's famous "Buck-Stopper" customer service. Your Owner Registration Card is your ticket to fast, dependable, one-stop service nationwide and in Canada.
- The International Coachmen Caravan Owner's Club, to bring you the most pleasure in owning an RV.
- Traditional high trade-in value for any recreational vehicle built by Coachmen!

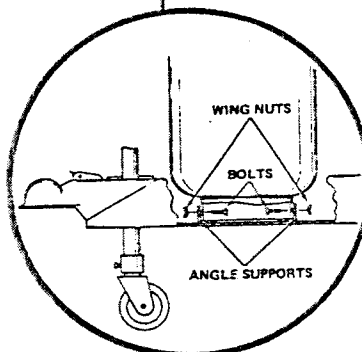
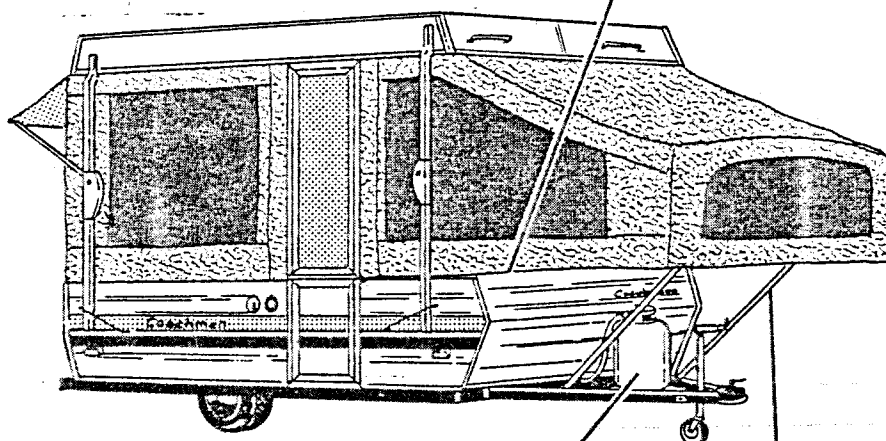
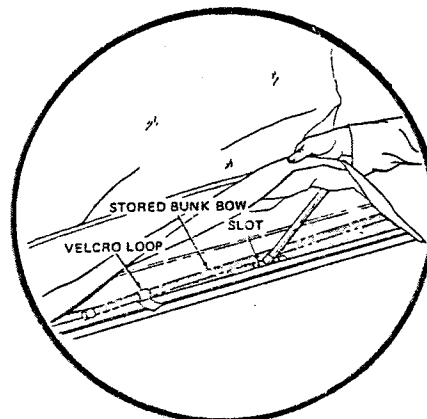
COACHMEN — AMERICA'S #1 SELLING NAME IN RV'S.

FOLDOUT

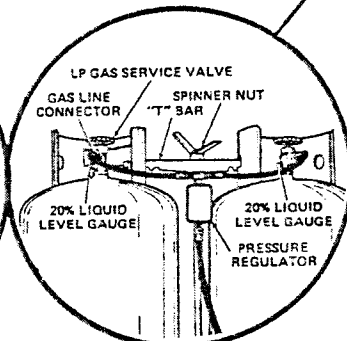
SINGLE LP GAS
REGULATOR



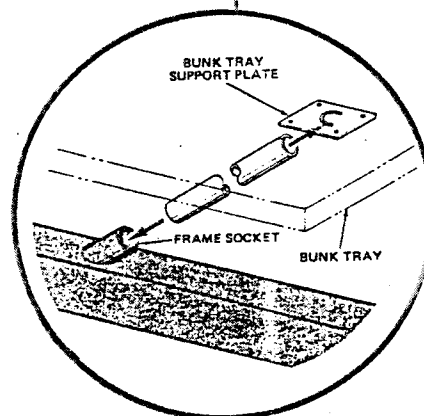
BUNK BOW SLOTS
FIGURE 13



SINGLE LP GAS BOTTLE
FIGURE 19



DUAL LP GAS BOTTLES
FIGURE 18



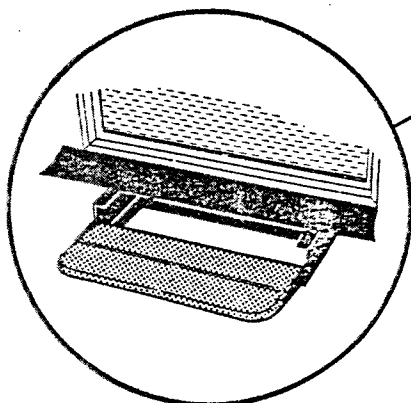
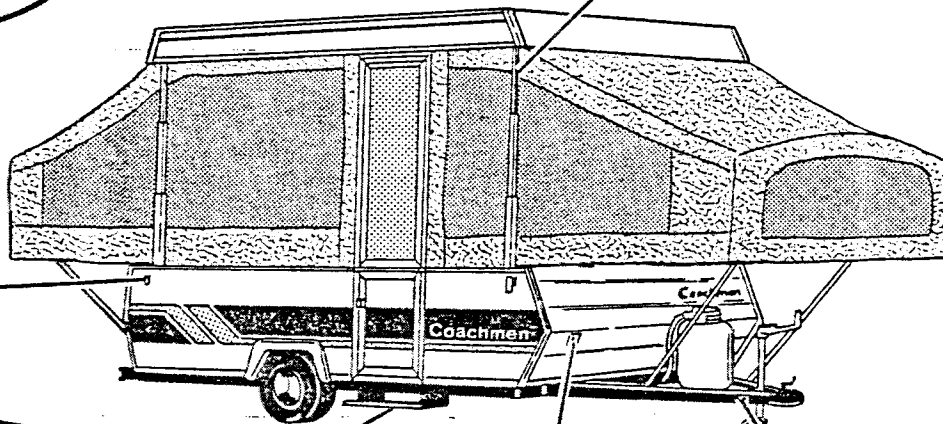
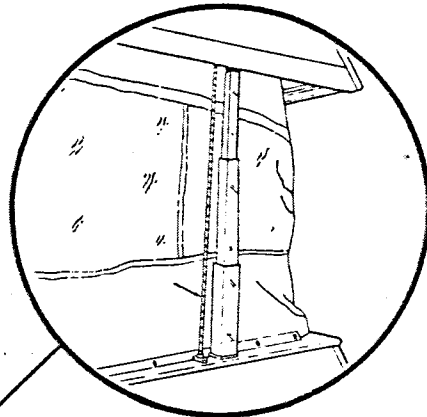
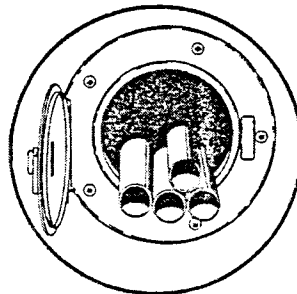
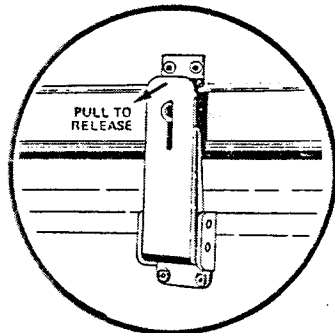
TRAILER FRAME
BUNK SUPPORTS
FIGURE 12

COACHMEN TENT

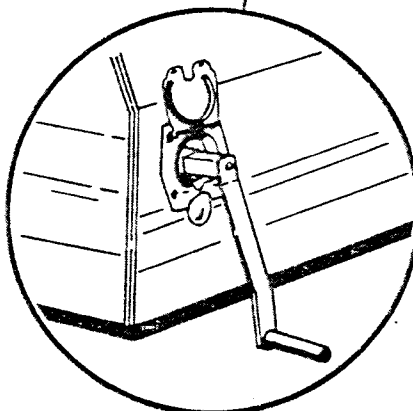
HEIGHT INDICATOR
CABLE
FIGURE 9

BUNK TRAY
SUPPORTS COMPARTMENT
FIGURE 11

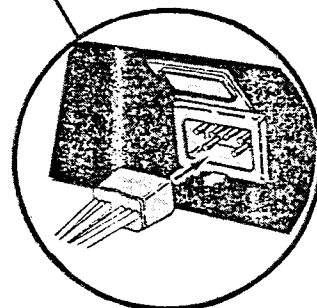
CRANK LIFT
ROOF LATCHES
FIGURE 7



STEP
FIGURE 5

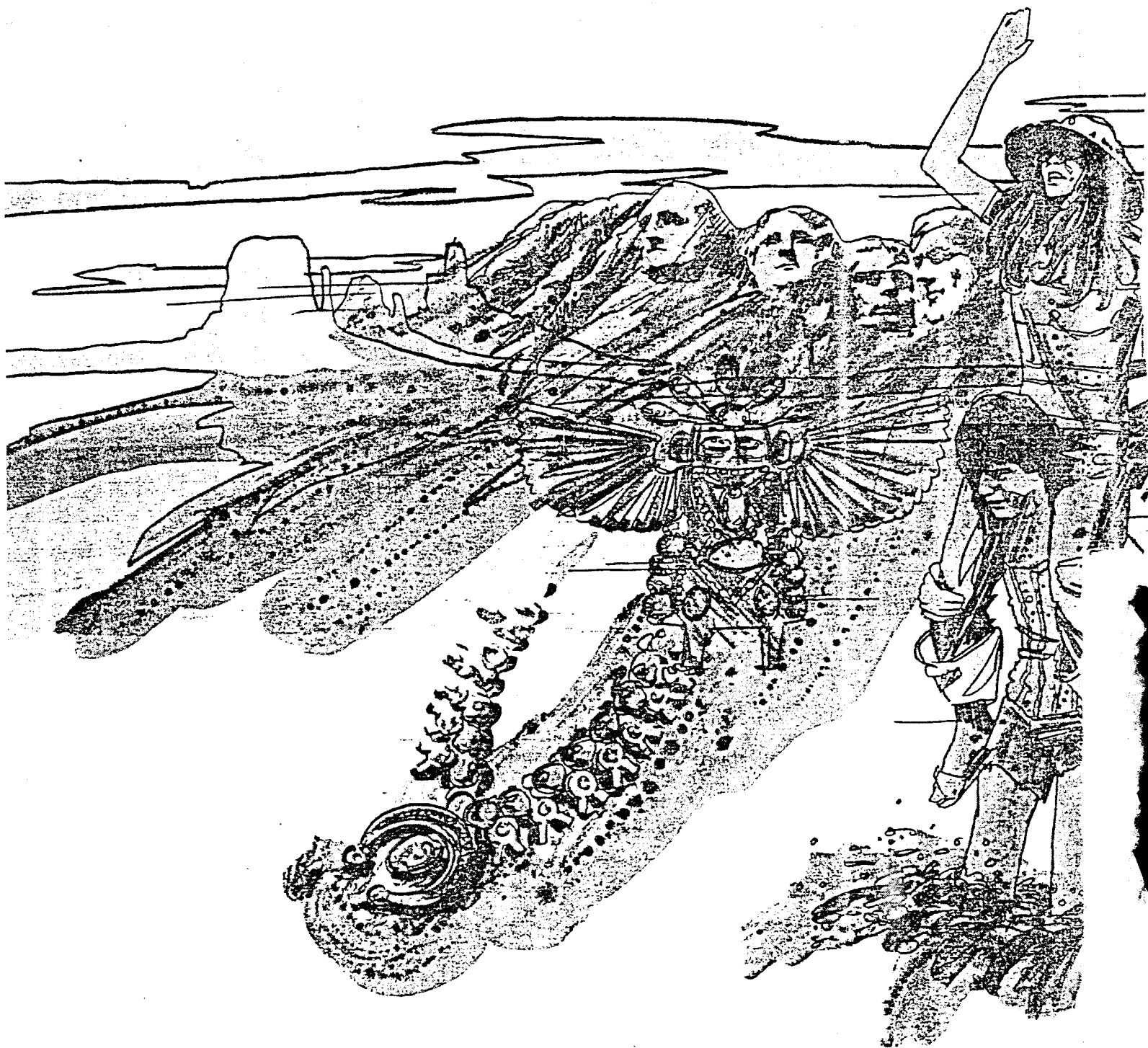


WINCH HATCH
FIGURE 8



ELECTRICAL CONNECTION
FIGURE 4

VEHICLES SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY; SOME ITEMS SHOWN ARE OPTIONAL OR MAY NOT BE AVAILABLE ON CERTAIN MODELS.



Coachmen
RECREATIONAL VEHICLES
P. O. BOX 30 • MIDDLEBURY, INDIANA 46540

5-814.OM Litho in U.S.A.