1971
AVION
TRAVEL COACH

Operation and Service Manual

Keep this book with your Avion at all times

AVION COACH CORPORATION
1300 E. Empire Avenue, Benton Harbor, Michigan 49022

WARNING

POTABLE WATER ONLY

SANITIZE, FLUSH AND

DRAIN BEFORE USING.

SEE INSTRUCTION MANUAL

This label appears on your coach near the manual fill spout and at the hose storage compartment. Your water system may be sanitized by filling the tank with potable water, adding two (2) cups of Clorox (one tablespoon per gallon), allowing to stand for 30 minutes and then draining the tank by pumping the contents through the water distribution system. To flush, repeat with fresh water. Refer to water system instructions on page 10, item 5 in your owner's manual.

AVION TRAVEL COACH

OPERATION AND SERVICE MANUAL

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SECTION I

GENERAL PROCEDURE FOR "HOOKING-UP" BEFORE A TRIP

The following steps are suggested as a check list before starting on your trip with your Avion Coach.

1. See that all clothing, dishes, golf clubs, fishing gear, etc., are properly stored. Heavy gear should be located near the floor and as near to the center of the coach as possible. It is wise to use square plastic containers in your refrigerator. **DO NOT** leave ice cubes in the freezer compartment unless the refrigerator is operating while traveling. Pack rolled towels in front of the containers in the refrigerator so they will not move about or spill over. Insert the safety pin in the refrigerator door to prevent it from opening while traveling. Unless you plan extended stays far off the beaten path, there is no need to store up on food.

2. Be sure all drawers, cupboards and closet doors are securely latched. The single-piece bathroom door may be latched closed for traveling. If your trailer is equipped with a bi-fold door, it should be hooked open.

3. Radios, TV sets, books, folding chairs, etc., should not be placed on top of beds while traveling. The vibration of the mattress and springs has a tendency to move everything forward and, if the brakes are applied quickly, they may be thrown to the floor. Loose items should be placed on the floor near the center of the trailer.

4. If your utilities are hooked up, disconnect the 120 volt Power Cord at the receptacle and store in the cord storage compartment. Close the range top pilot valve, if pilot has been used, close the oven shut-off valve. See instructions for Range and Oven in Section IV.

5. Flush the holding tank, refill with 2″ of water and add a commercial holding tank chemical, if desired. Disconnect the sewer and water hoses, drain and store. The sewer hose may be kept in the rear bumper. **Be sure to lock the holding tank valve into closed position, and turn off the water pump switch.**

6. Close all windows and ventilators, lower the TV antenna and lock the entrance door. When traveling on extremely dusty roads it is advisable to leave the front roof vent slightly open into the wind. This has a tendency to create an air pressure inside the coach and prevents dust from filtering in. Be sure the front awning is closed and latched on both sides.

7. Remove the stabilizing jacks or blocks from under the coach and fold the step into the "stored" position.

8. A 2⁵⁄₁₆″ hitch ball should be mounted on your car, so that the top of the ball is 20″ from the ground. At this height, and with an equalizing hitch properly adjusted, your Avion coach will ride level. Although the Avion will tow properly even if the coach is not perfectly level, we recommend that trailer and car ride as level as possible.

To hook the coach to the towing vehicle, raise the front of the coach with the post jack and have your partner back the car into place.

After the ball has been positioned under the hitch socket, check to be sure that the locking lever has been raised and pulled to the rear, then lower the front end of the coach onto the ball. Rock the car back and forth enough to be sure that the socket and ball are fully engaged, and put the ball lock in place. The lock should be secured by placing a safety pin or small lock through the hole just to the rear of the latch.

Jack up the front of the coach again (the car will come up with it) and put on the balance of the hitch, adjusting for level in both units. It is advisable to use an equalizer type hitch. Make all adjustments according to the manufacturers instructions.

Lower the coach onto the hitch, remove the dolly wheel, or any blocks that may have been used under the post, and crank the jack post to the highest possible position. Hook up the electric connections from the car to the coach, connect the safety chains and anchor the breakaway switch cable to the auto.

9. Check the brakes and lights.

10. Re-check all previous steps and be sure to leave your parking area clean. It is a good practice to pull your coach a short distance from the parking spot and inspect the area before departing.

SECTION II

PARKING AND SET-UP PROCEDURE

1. When positioning the coach, try to select a spot as level as possible. Do not use jacks to level the coach. It should be leveled by driving up on a board, or by using a shovel to level the area under the wheels before positioning. Jacks can then be used to stabilize the coach.

CAUTION: When locating jacks or blocks, **DO NOT** place them under the aluminum underbelly or skin. Stabilizing jacks for Avion coaches should be placed under the frame at the front and rear of the coach. Extend the jacks only enough to support the frame.

2. Make water, sewage, and electric hook-ups if your stay will be long enough to require them.

3. Light pilot lights, raise front awning and lock in place.

SECTION III

PROTECTION FROM FREEZING WEATHER

1. Level the coach and disconnect water supply hose. The water lines in your coach have been installed with a slope to permit gravity draining. Inspect these lines to be sure they have not been bent out of position. Water lines from bath lavatory and galley sink should slope toward water heater, draining through the heater tank drain. The water lines from the galley sink forward should slope to the water tank drain valve.

2. Drain the water storage tank by opening the drain valve which is located at left end of the tank. The storage tank may also be drained by opening one or more of the faucets and pumping the water into the sinks, where it will drain through the sewer hose.

3. Shut off water pump at switch, open all faucet valves, and drain water heater tank. The valve for this tank can be reached by removing the panel on the outside of the water heater. Be sure that the water heater has been turned off before draining.

4. Remove water from the stool by holding both foot pedals down and allowing the system to drain. Be sure the water supply has been turned off and that the cold water faucet in the bathroom sink is open. This will vent the water line to the stool and allow it to drain.

Remove the flare nut which connects the water line to the back of the stool. Break the connection, hold the pedal down and allow the water to drain. Be sure to replace and tighten the flare nut before using the water system.

Lay the water saver spray gun on the floor and put a rubber band around the thumb button to hold the valve open and allow it to drain. The spray head may also be removed from the hose to prevent damage from freezing.

Should water accidentally be left in the stool, damage may be prevented by allowing the unit to thaw out at room temperature before using. **DO NOT ATTEMPT TO FLUSH A FROZEN STOOL.**

5. Pull up on shower spray valve to open. Open shower head and allow all water to drain from the hose.

6. Open the holding tank valve and drain tank completely. (Drain should be connected to sewer for this operation.)

7. Raise the front end of the coach as high as it will go by cranking the jack all the way up and allow water to drain. Then crank jack to lowest position and allow water to drain. Return to level position.

8. Use suction pump to remove water from traps, or pour about one cup of any Ethylene Glycol type anti-freeze in each of the three traps – one in the kitchen sink, one in the bathroom sink, and one in the bathtub. Use caution to avoid spilling the solution on plastic surfaces where discoloration may occur. **DO NOT** use an alcohol base anti-freeze.

9. If your trailer is equipped with a purifier, remove the cartridge, allow to dry and store until ready to use again.

10. Drain the water pump as illustrated on the next page. Turn the pump off. Place a small pan under the end of the water line at the connection to the pump discharge hose – Location "A". Loosen the brass flare nut and disconnect the hose fitting from the copper line. Allow any remaining water to drain from the line into the pan. Keep the sink faucet open to vent this line while draining. Lay the pump discharge hose flat on the floor and start the pump. Use a rag or sponge to wipe up the small amount of water that will be discharged from the opening.

Turn the pump switch off and do not connect the hose to the water line until warm weather, or until the coach is prepared for use.

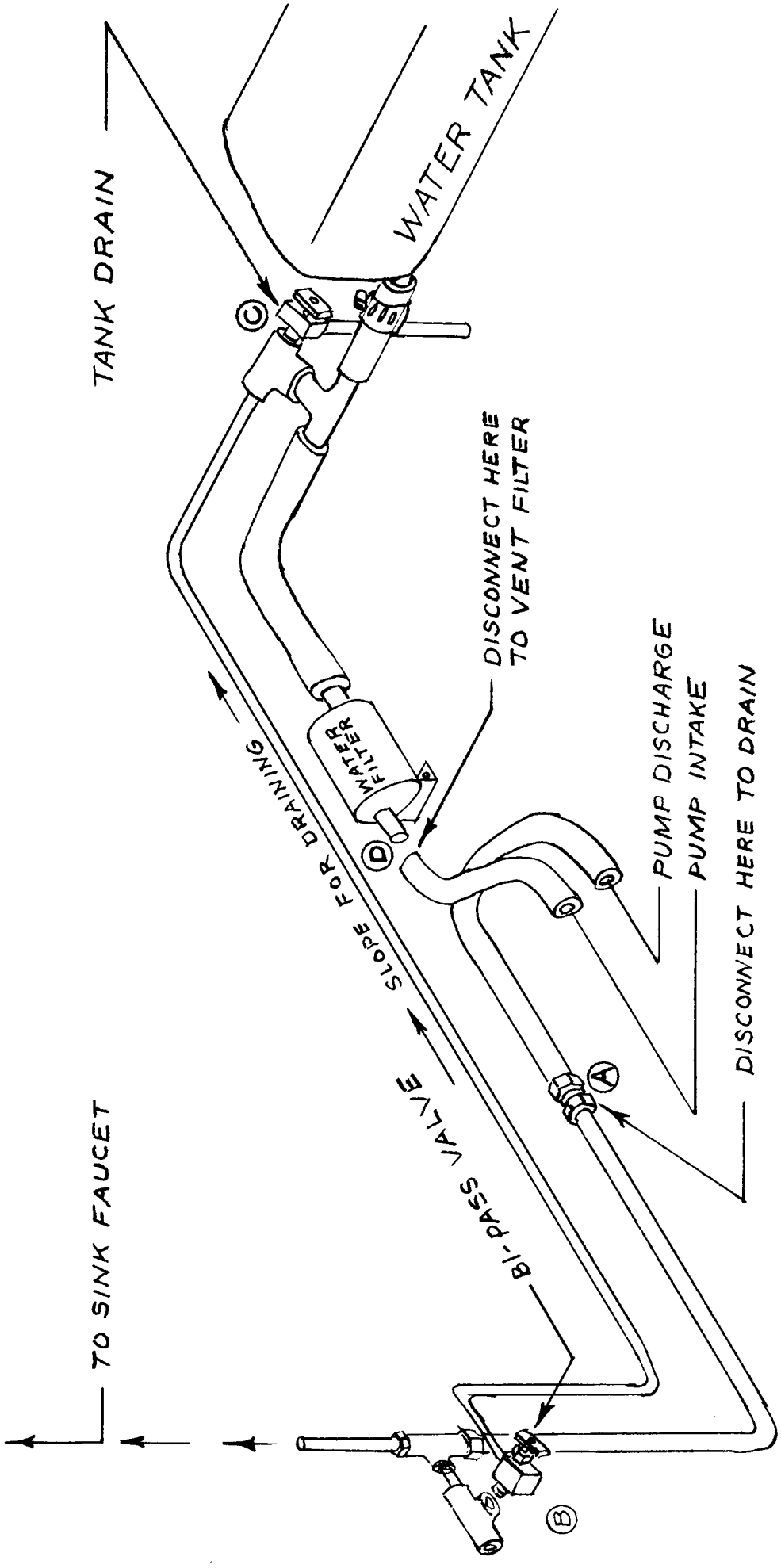
Open the cold water faucet at the kitchen sink. Open the water fill bi-pass valve which is located under the kitchen sink – Location "B". Open the drain valve at the left end of the water tank and allow the water in bi-pass line to drain – Location "C". Remove the hose connection from the left end of the plastic water filter – Location "D" – to provide a vent and permit water trapped in the filter to drain out through the tank drain.

11. Insert a stiff wire or slender rod into the water inlet fitting which is located in the hose storage compartment. Push upward to release the spring tension in the check valve and allow water to drain from it. Be sure faucets are open to vent the line.

12. If it is practical, remove the batteries and store in a warm place during freezing weather. If the batteries are kept on the coach, be sure that they have a full charge to prevent freezing.

13. CAUTION – Do not travel with the anti-freeze solution in the tub or lavatory drains unless the drain plugs are securely inserted to prevent the solution from splattering on the plastic.

PROTECTION FROM FREEZING WEATHER



SECTION IV

OPERATION – CARE – MAINTENANCE

CARE and CLEANING

WINDOWS are Plexiglas acrylic plastic. They should be dusted and cleaned with a damp cloth or chamois, wiping the surface gently horizontally. Wash with a mild soap or detergent and water. Use as much water as possible, applying with a clean soft cloth, sponge or chamois. The best method of drying is with a clean damp chamois.

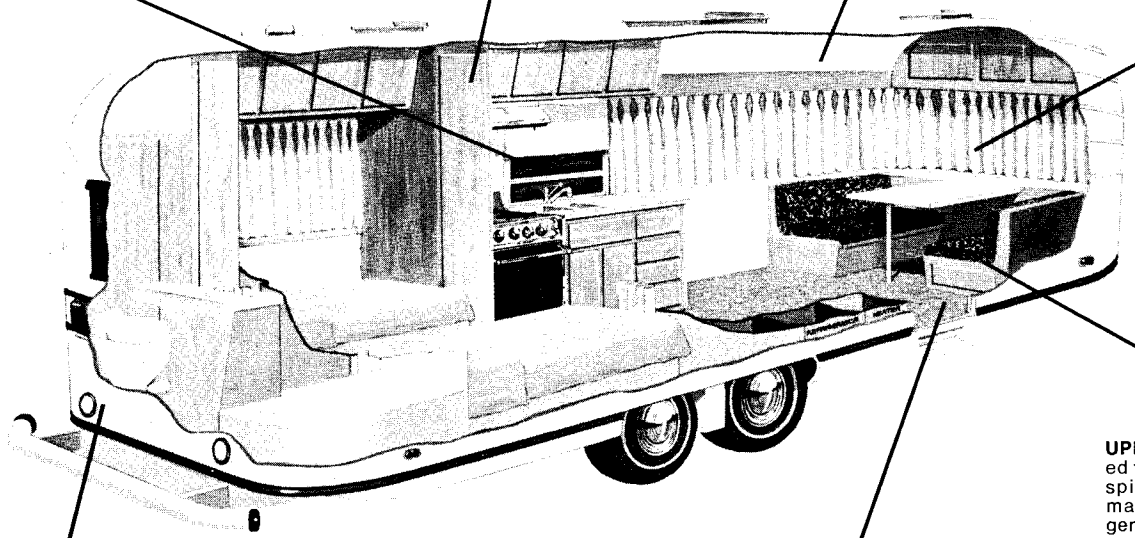
You can protect them with a good grade of commercial wax. Apply and bring it to a high polish by rubbing with a soft dry cloth.

To remove or reduce minor scratches, hand polish with a small cloth or pad dampened in water. Deep scratches may be removed by sanding with a very fine sandpaper, keeping wet while sanding. Use a 320 or 400 grade sandpaper. Buff with a fine abrasive after sanding and then polish to a high gloss with wax.

CABINETS and WOODWORK deserve the same care as the furniture in your home. A furniture wax or polish will aid in maintaining the fine factory finish. Upper cabinet doors are equipped with a single-arm friction brace. Tighten the adjusting screw to increase friction if the door does not stay in open position.

INTERIOR WALLS are covered with vinyl. They may be cleaned by washing with a mild soap or detergent and water. DO NOT use an abrasive cleaner or a solvent as it may damage the vinyl or dull the finish. Avoid exposure to concentrations of propane or natural gas. The bathtub should have the same care as the interior walls.

DRAPERIES, optional bedspreads and slumber bags are of high quality synthetics and should be dry cleaned.



UPHOLSTERY is soil resistant treated to minimize spotting. (Sponge up spills immediately.) Soiled areas may be cleaned with mild detergent and water.

EXTERIOR SKIN of anodized aluminum should be washed and cleaned in the same manner that you care for your automobile. Wash with a mild soap or detergent. Road tars may be removed with *kerosene, turpentine* or *naptha*. Follow the cleaning with a soap and water rinse and then dry with soft, absorbent material.

CAUTION: When using these liquids, do not allow them to get on the window panes. Do not use cleaners containing caustic or ammonia.

A polish may be used on the exterior surface to provide additional protection. A cleaner-wax-polish type material should prove satisfactory, if the manufacturer's instructions are followed. Be sure to do the polishing in the shade, rubbing the same direction as the grain in the metal.

A more permanent protection may be obtained by applying a coating of clear wax after the polishing is completed.

Exterior seams should be examined periodically for holes or cracks which may result from shrinkage of the sealer after prolonged exposure to the elements. The sealer for all exterior seams of your Avion carries the brand name of "Ten-X". It is manufactured by Electo-Cote Company, Minneapolis, Minn., and can be purchased from most trailer dealers and automotive supply stores.

CARPETING (optional and factory installed) is 100% polyester. It may be cleaned with any good grade of foam carpet cleaner. Follow the instructions on the container. The Johnson Wax product "Glory" has been found to work well.

2. WINDOW SCREENS and STORMS

Removal of the window screen is accomplished by pushing upward on the screen frame until it clears the bottom channel. It can then be pulled out from the bottom and removed.

Optional storm sash may be installed without removing the screens. Small clips around the inner frame are used to secure the storm sash in place.

3. DOOR LOCK

The entrance door is equipped with a "Dead-bolt" lock. Turn the key to the right (clockwise) to lock the door, and to the left (counter-clockwise) to unlock it.
The door can only be locked when the bolt is fully engaged. When locked, the bolt cannot withdraw or vibrate back and allow the door to come open. Always lock the door before towing your Avion. Check the lock by attempting to open the door with the outside handle.

The door can be locked from the inside by depressing the button under the handle. Turning the inside handle will automatically unlock the door. Do not attempt to lock the door while open and then close it.

4. ELECTRICAL SYSTEMS

Each Avion coach is provided with three separate electrical circuits: (A) 12-volt exterior light and brakes; (B) 12-volt interior lighting system; (C) 120-volt interior system.

(A) **Exterior Lights** – The cluster lights and clearance lights are I.C.C. regulation approved. Check these lights periodically to be sure that the bulbs are burning. Replacement bulbs are G.E. type 1895 or equivalent.

The tail lights and turn lights are in single lamps at the rear of the coach. They use double filament bulbs, G.E. type 1157 or equivalent.

Power for the lights and brakes is supplied from the automobile battery, through the 7-wire connector. The coach wires appear in a heavy cable at the trailer hitch.

WIRING CODE FOR AVION COACHES

#1 – White	connects to:	Brake – Ground
#2 – Blue		Brake – Hot
#3 – Green		Clearance Lights
#4 – Black		Battery Charging by Tow Vehicle
#5 – Red		Left Turn Light
#6 – Yellow (Brown)		Right Turn Light
#7 – Black-Center Post		Backup Lights

A separate wire is provided to connect the automobile alternator to the coach battery. This wire is taped to the 6-wire cable. It is connected to the positive battery terminal at the factory for cars with standard "negative ground" system.

Brakes – Your coach is equipped with 12-volt electric brakes. The 22 ft., 25 ft., and 28 ft. tandem axle models are equipped with 10″ brakes. The 31 ft. tandem axle model is equipped with 12″ brakes.

These brakes have been adjusted at the factory for smooth, positive braking. If brake adjustment becomes necessary it should be done by your dealer's service department or by a competent automotive mechanic. The method of adjustment is the same as most automotive brakes.

INTERIOR LIGHTING

(B) **Interior Lights** – The lights, fans and water pump are operated on 12-volts direct current. This energy may be provided by the standard equipment batteries which are located at the front of the trailer, or by the converter.

Two 12-volt batteries are provided to give a greater amount of reserve energy for self-contained operation. These batteries are connected in parallel. Should one battery fail to function, the other battery will continue to provide power, to the limit of its capacity. If, for any reason, one battery is removed from the circuit, be sure that it is correctly re-connected, as illustrated on page 10.

The batteries should be checked periodically to be sure that they are at the proper charge level. Use a hydrometer to test the individual battery cells. A fully charged battery will have a specific gravity reading of 1.260 to 1.280 at 80 degrees fahrenheit.

When checking a battery, be sure that the level of the electrolyte (water) is adequate to cover the tops of the separators. Permanent damage may occur from charging and/or from traveling with plates not fully covered. When the electrolyte is low, add filtered or distilled water to obtain the proper level. Keep the battery terminals clean by wiping with a cloth wetted in baking soda or ammonia and water. Inspect wires and battery terminals for corrosion or poor connections.

To prevent damage to the batteries, never allow them to become fully discharged. The specific gravity should not be allowed to drop below 1.150. Be sure that the 120-volt power cord is fully plugged into the outlet whenever AC service is available. Use of 120-volt service will not only save battery energy, but it will also provide automatic charging to keep your batteries in top condition.

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The batteries are warranted for one year. A list of independent Battery Manufacturers is provided in the Warranty Kit supplied with your coach. Consult this list and contact the nearest manufacturer to obtain the name of a retailer that can provide service and make adjustments.

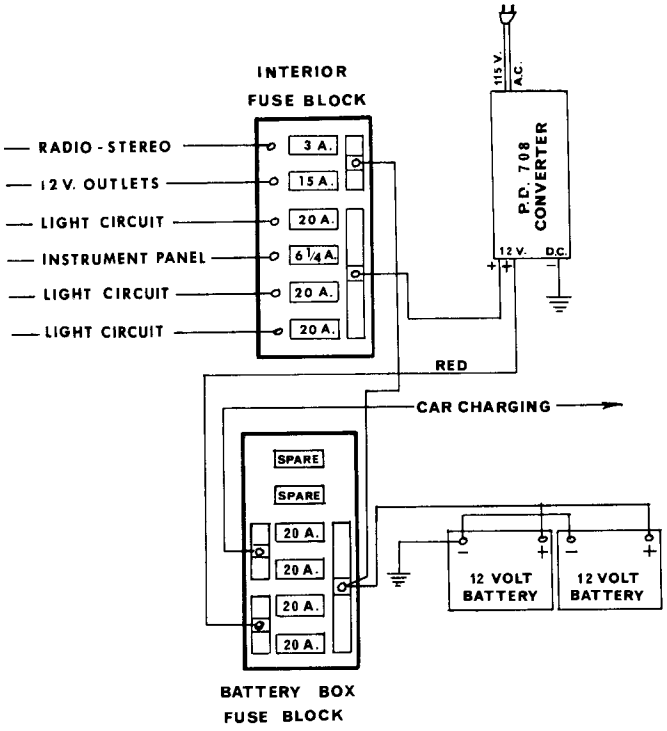
22 foot and 25 foot coaches are equipped with two 65 ampere-hour batteries, group no. 24 HRV. The 28 foot and 31 foot coaches are equipped with two 80 ampere-hour batteries, group no. 24 TRV.

The converter, or charger, provides 12-volt direct current whenever the power cord is plugged into a standard 110-120-volt 60 cycle AC source. It also provides the energy to charge the batteries. As a battery charger, the unit senses the state of the battery charge and will automatically charge and shut off as required. The converter is protected by a built-in circuit breaker. If a short, or overload is occurring, a 7 to 10 second clicking sound will be heard as the automatic reset breaker clicks off and on. The converter may be disconnected from the 120-volt source by removing the cord from the wall outlet adjacent to the unit. The converter is located on the trailer floor at the right front corner.

Two fuse blocks are provided to protect the 12 volt system. The battery box fuse block has two pairs of fuses. One pair protects the car charging line. The second pair protects the line to the converter. Both fuses in each pair must be in place at all times so that the load is divided between them. Extra clips are provided for two spare fuses.

The second fuse block is located inside, underneath the front shelf. Circuits and fuse sizes are shown below.

12-VOLT INTERIOR LIGHTING SYSTEM



Two 12-volt utility (cigarette lighter) outlets are provided in each coach. One is located in the bathroom and the other is adjacent to the TV antenna jack in the bedroom.

Use #1141 12-volt bulbs for ceiling and cornice light replacement. Clear bulbs are available at auto service stations. Frosted bulbs may be obtained from Avion Dealers, or Avion Service Corporation.

Replacement bulbs for the two 12 v. recessed lights under the front end cabinet are G.E. part no. 25 R 14 SC/SP. These are available from Avion Service Corporation.

(C) **Interior 120-volt** – The numerous wall outlets in your coach are located to provide convenient electricity for the various 110-120 volt appliances such as an iron, toaster, percolator, etc. These outlets can be used whenever the 25 ft. Power Cord is plugged into a 120-volt AC source. The Power Cord is stored under the left rear side of the coach. When connecting it to an outlet, arrange the cord so that the weight of it does not cause a poor connection. The cord storage opening has a slot in it so that the storage door may be kept closed while the cord is in use. A weatherproof outlet is located on the exterior of your coach for convenience in using tools and appliances outdoors.

The 120-volt system is protected by circuit breakers. These are located in a box at the back of the bathroom closet. The main breaker is 30 amps. Turning it off will disconnect all 120-volt wiring in the trailer. Separate breakers are provided for: (1) Appliance Circuit, (2) Air Conditioning Circuit, (3) General Purpose Circuit and (4) Water Heater Circuit.

5. WATER SYSTEM

Your Avion is equipped to provide water service from a city water system or from the self-contained water tank.

Connection to a city water supply is made through a water hose connected from the city supply to the water fitting on the trailer. This fitting is located in the storage door on the left side of the coach. A pressure reducing valve protects against excessive city pressures.

A molded plastic water tank is located at the front of the trailer, behind the sofa or dinette. The fill spout appears on the outside of the coach at the front. The tank may be filled by removing the filler cap and using a hose or bucket to add fresh water. A bi-pass line is also provided to permit filling the tank while connected to a city water supply. To fill the tank, remove the front spout cap to prevent pressure build-up, and then open the bi-pass valve which is located under the counter top. See illustration on page 6. The tank will overflow at the front fill spout when full. When this happens, close the valve and replace the spout cover. This valve should be kept fully closed except during filling. **DO NOT LEAVE THE TRAILER UNATTENDED WHILE FILLING THE TANK.** Turn off the water pump switch during BI-PASS FILLING.

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Water System (cont'd)

The water tank may be drained by opening any faucet with the pump turned on or by opening the drain valve at the left end of the tank. This valve is accessible by removing the cushion and lifting the storage lid in the left seat on dinette models, or by removing the cushion and pulling out the sofa.

The coach is equipped with a Peters & Russell water pump to supply water pressure whenever a faucet is turned on. A switch is provided to turn the pump off while the coach is unattended, or when connected to a city water supply. **DO NOT TRAVEL WITH THE WATER PUMP SWITCH IN THE "ON" POSITION.** The surge of water, which can occur during starting and stopping, may cause the pump to turn on. Since no water can run and allow the pump to cycle, it will continue to run and not shut off.

The pump is mounted on the floor at the left front corner of the coach. It has a built-in check valve to prevent water from backing up into the storage tank when the system is connected to a city water source.

The model 6950-J pump is warranted by the manufacturer for a period of **one year.** Warranty service and parts may be obtained from: **Peters and Russell, Incorporated, 529 West Liberty Street, Springfield, Ohio 45501.** Their telephone number is AC 513 323-3777.

A filter is located in the water line between the tank and the pump. Inspect this filter periodically to be sure that an accumulation of foreign matter does not impair the water flow. The filter may be cleaned by removing it and rinsing or back-flushing, or by disassembling the two halves and removing the screen to clean it.

The bathroom lavatory fixture has a divert button to direct the water flow to the shower head. The built-in push button control in the shower head is designed for volume control (water saver) and is not intended as a shut-off valve. A slight trickle though in the closed position is normal. After using the shower be sure to shut off the water at the lavatory faucet.

The kitchen sink is equipped with a Model 7525 Moen faucet, with a 12-month warranty. Complete and mail the warranty card in the Warranty Envelope provided with your trailer. For warranty service or parts, consult the classified section of the telephone book for the name of a plumbing contractor, or write the manufacturer: **STANDARD SCREW COMPANY, 377 Woodland Avenue, Elyria, Ohio 44035.**

6. GAS SYSTEM

The coach gas system consists of two gas tanks or bottles, a regulator, gas distribution piping, and the various appliances which operate on gas.

This system is designed for use of liquefied petroleum (LP) gas only. Do not connect natural gas to this system.

Before turning on gas, make certain all gas connections have been made tight, all appliance valves are turned off, and any unconnected outlets are capped.

After turning on gas, test piping and appliances for leakage with soapy water, and light all pilots.

The two gas bottles are located at the front of the coach. Each is equipped with a valve to control the flow of gas. A regulator is used at the tanks to reduce and control the pressure from the tanks to the appliances. The regulator is preset at the factory to maintain a pressure of 11″ water column, or approximately 6½ ounces per square inch. All appliances are adjusted to operate at this pressure.

When filling bottles, do not leave end of gas line (pig tail) open, even for a few minutes. Bugs are attracted, die inside tubing and plug the line. Tape tube end shut while filling bottles.

Automatic Regulators

Automatic regulator provides uninterrupted service to your gas system. Both bottle valves must be open to permit automatic change-over. An indicator on the regulator will show red when the regulator automatically begins to draw from the reserve cylinder. The arrow on the flip-over lever will point to the empty service cylinder. Flipping the lever to the opposite position will change the Reserve cylinder to the Service cylinder. It will also cause the red indicator to disappear. Close the valve of the empty cylinder before removing it for refill. After refill and replacement, it will become the Reserve cylinder. The next time the red indicator appears the process should be repeated. NOTE: If the system is under heavy load, particularly in cold weather, the Service cylinder pressure may drop enough to indicate Reserve, even though there is fuel in the Service cylinder. Do not consider the cylinder exhausted until it shows red (Reserve) under a light load.

Testing for Gas Leaks

All gas line fittings, except those at the individual appliances, are located outside the coach. Several connections will be found under the coach, where the main gas line branches off to supply the individual appliances. These gas lines and fittings should be inspected and tested periodically for possible damage and leaks. Brush or spray a soap suds solution over all fittings and any damaged areas in the line. The bubbles will grow in size to indicate the presence of a leak.

If the odor of gas is detected inside the coach, extinguish all flames and test for leaks. If the leak cannot be detected, turn off the valves on both gas bottles and see your dealer's service department, or a competent gas appliance service man. **DO NOT CONTINUE TO USE YOUR GAS SYSTEM UNTIL THE LEAK IS LOCATED AND ELIMINATED.**

The gas appliances in your coach are designed and adjusted to use L.P. gas. Propane gas is the most common type. Butane may be used but will not vaporize, or turn to gas at temperatures below 31°F.

7. WATER HEATER

Your coach is equipped with a 6 gallon Bowen combination gas-electric water heater. It is located on the left side, near the rear of the coach. An exterior door is provided to give access to the gas controls and the drain valve.

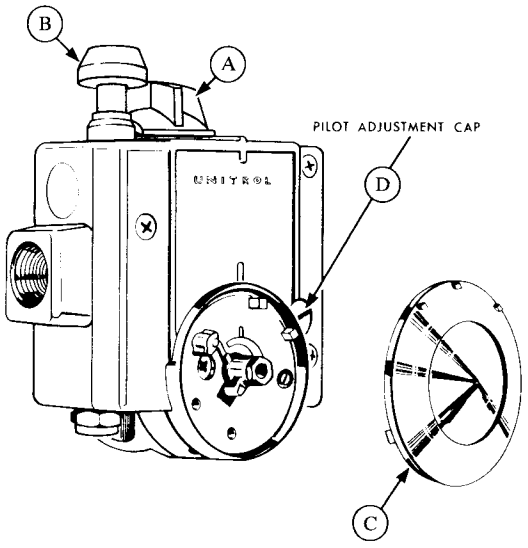
Electric Operation

This heater is equipped with a 1,000 watt, 115-volt element for operation on electrical current. A separate circuit breaker is provided to protect this appliance. The heater is equipped with a power cord and plug that connects to the adjacent receptacle. A convenient "ON-OFF" switch is located on the electrical box, fastened to the heater jacket. It is accessible from inside the trailer. **DO NOT TURN THIS SWITCH ON UNLESS THE HEATING ELEMENT IS COVERED WITH WATER.** Failure to do so may burn out element and void warranty.

Gas Operation

LIGHTING PROCEDURE

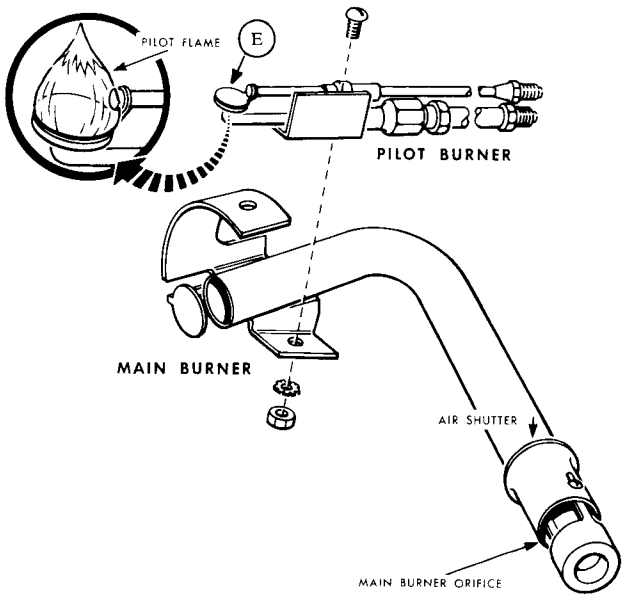
1. The water heater should be filled with water, gas bottles should be full and valves open.
2. Gas cock dial (A) should be in "off" position.
3. Wait sufficient length of time to allow gas which may have accumulated in burner compartment to escape, (at least 5 minutes if re-lighting).
4. Turn gas cock dial (A) to "pilot" position.
5. Depress and hold reset button (B) while lighting pilot burner (E). Allow pilot to burn approximately one-half minute before releasing reset button. If pilot does not remain lit, repeat operation allowing longer period before releasing reset button.
6. Turn gas cock dial (A) to "on" position and set temperature dial (C) to desired temperature.
7. To shut down the heater, turn gas cock knob to "off".



PILOT AND MAIN BURNER ADJUSTMENT

Your BOWEN WATER HEATER has been adjusted at the factory with proper air and gas mixture for both pilot and main burner. Should it be necessary to change these adjustments, use the following procedure:

1. **Pilot Adjustment:** Adjust pilot flame to ½" high or until a slight yellow tip appears in pilot flame. Pilot adjusting key is located beneath the pilot adjusting cap (Item D).
2. **Gas Line Venting:** When unit is new or has run out of gas it may be necessary to repeat steps 4 and 5 in the LIGHTING PROCEDURE to remove air in the gas line. It is recommended that appliances such as the range or space heater be lighted first. This assures a supply of gas in the main gas line.
3. **Main Burner Adjustment:** Proper combustion depends on the gas and air mixture at the main burner, this is obtained by sliding the air shutter. A yellow smoking flame indicates a lack of air and noisy hard flame indicates an excess of air. A good method of adjusting the air shutter is to slide the shutter closed enough for yellow tipping to occur on the main burner (not pilot) then slowly open air shutter until yellow tipping is gone, then tighten screw.



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Water Heater (cont'd)

The drain valve is located in the front of the heater. The unit should be drained as required per Section III in this manual.

It is normal for water to drip from the water heater relief valve while water is being heated. The valve is relieving the pressure buildup caused by the expansion of heated water.

The Bowen Model GC6A water heater is warranted by the manufacturer for a period of 12 months, according to the terms of their warranty statement. Consult the warranty sheet for complete details.

Warranty service and parts may be obtained from: **ATWOOD VACUUM MACHINE COMPANY, 1400 Eddy Avenue, Rockford, Illinois 61101.** The telephone number is: AC 815 877-5771. Your coach warranty package includes detailed information on the Bowen warranty and a list of Bowen Service Stations where their work may be performed.

8. GAS FURNACE

All coach models are equipped with Suburban Dyna Trail forced air furnaces. The hot air is carried by ducting to several locations in each trailer. The 22 foot and 25 foot models are equipped with a 22,000 BTU furnace. All other coaches use a 30,000 BTU furnace.

The furnace is installed on the right side of the trailer. Combustion air is taken in and discharged through the trailer wall. Do not restrict the openings.

The furnace controls are located behind the vented cold air return door. To light the furnace, open first the cabinet door and then the metal door on the furnace. Lighting instructions are located on the back side of the metal door, and also explained in detail in the Suburban manual provided in each Owner's Envelope.

To turn the furnace off in warm weather, close the gas line valve and turn the thermostat to the "off" position.

The return air intake is through the perforated access door panel. Do not block the flow of air through this panel. The hot air registers should also be kept clear at all times.

Both furnaces, Model NT-30 and the NT-22 are warranted for a period of **one year** according to the terms noted on the warranty form. Warranty service and parts may be obtained from: **SUBURBAN MANUFACTURING COMPANY,** Box 399, Dayton, Tennessee 37321. The telephone number is: AC 615 775-2131. Collect calls regarding warranty problems will be accepted.

9. WATER CLOSET (TOILET)

Your Avion is equipped with a Thetford Aqua Magic pedal-operated water closet. Operating instructions are as follows:

1. Directions for Automatic Flush and Refill:
   A. Depress both foot pedals, thus opening the slide valve and dropping the waste into the holding tank. The small pedal turns the water on.
   B. Keep both foot pedals depressed from one to three seconds until water begins to swirl in the bowl, rinsing it. This short time lag fills the rim storage (for bowl refill) and allows the bowl to drain.
   C. Release both foot pedals. This closes the slide valve and stops the usage of fresh water. The rim storage now drains and refills the bowl.*

2. Directions for Flushing with the Slide Valve Open a Minimum Amount of Time:
   A. Depress the small pedal on the right and hold it down until the water begins to swirl in the bowl.
   B. Release the small pedal.
   C. Step on the large pedal, thus opening the slide valve and dropping the waste into the holding tank. The water will immediately swirl in the bowl, rinsing it. Note that the large foot pedal carries the small pedal down with it, when it is depressed. The time lag in the flush is eliminated, because the small pedal actuates the water inlet valve; and the rim storage is filled, when both pedals are depressed.
   D. Release both foot pedals. This closes the slide valve and stops usage of fresh water, and the bowl refills automatically from the rim storage.*

3. Directions for Flushing with the Water Saver Package Installed:
   A. Hold the hand spray in ready position over the bowl.
   B. Depress thumb button on the hand spray.
   C. Depress both foot pedals, thus opening the slide valve, dropping the waste into the holding tank, and sending fresh water through the hand spray.
   D. Spray the bowl clean with the hand spray. Release the foot pedals, thus closing the slide valve, and shutting off the water flow through the hand spray.*

*Be sure all paper is flushed from the bowl. If wedged in the valve seat, paper will prevent sealing.

continued on next page

Water Closet (Toilet) (cont'd)

The Aqua Magic Toilet does not require lubrication. Ordinary household cleaners may be used for routine cleaning. Common toilet bowl cleansers may be used; however, they should be flushed on through the system within four hours, and should not be left in the holding tank for any extended period of time.

The Thetford Toilet is warranted by the manufacturer for a period of two years, according to the terms and conditions of the Guarantee statement. Warranty service and parts may be obtained from: **THETFORD ENGINEERING CORPORATION, 6539 Jackson Road, Ann Arbor, Michigan 48103.** Their telephone number is AC 313 426-4612.

10. WASTE HOLDING TANK

Your coach is equipped with an Avion molded styrene waste holding tank. This tank is installed with a Thetford valve and cap located on the outside of the coach at the left rear. Close the valve, to retain waste from the toilet, by pushing the valve "T" handle all the way in.

It is not wise to keep the tank valve open. The volume of water used with each flush may not be adequate to flood away all of the solids. The result can be a build-up that becomes hard to remove. Keep the dump valve closed, run about 2″ of water in the tank before using and flush every few days.

To flush, open the valve by pulling the "T" handle all the way out. This will send a large volume of sewage through the drain hose at one time, setting up a swirling action that will flush away the solids.

After flushing, run water through the tub or sink drains to dislodge any backed-up sewage that may have been forced into the drain openings.

Waste water from the tub, lavatory and sink will drain through the sewer hose, even when the holding tank valve is closed. Running water through the sink or lavatory drain while the holding tank cap is in place may cause water to back up into the tub. Always remove the cap before using water in the coach.

When preparing to travel, flush and refill with water. Add a commercial cleaner if desired. Be sure that the tank valve is closed and locked with the two wire clips to prevent accidental opening while driving.

When two coaches are traveling together it is sometimes necessary to share water and/or sewage disposal facilities. A standard garden hose "Y" fitting, available at any hardware store, will permit two to share a single water source. Connect the "Y" directly to the coach water inlet faucet. Trailer supply stores can provide a sewage connection "Y" that will also permit sharing a single sewage disposal system.

11. GAS–ELECTRIC REFRIGERATOR

Lighting instructions for the refrigerator are located on the inside of the panel below the refrigerator door. These instructions are duplicated in the Instruction Booklet that is supplied with each unit.

It is important that the refrigerator be level in all directions for proper operation. Place a small level on the freezer shelf and observe with the aid of a small mirror. For leveling instructions refer to Section II of this manual.

For best results operate the refrigerator on "gas". Some locations have wide fluctuations in the line voltage which can cause unsatisfactory operation when switched to "electric".

If your coach is equipped with a 7 cu. ft. refrigerator it will require a little longer to cool the interior when first placed in operation. This initial 5-6 hour cooling period is caused by the unit going through the defrost cycle before starting to cool. This model will automatically defrost the main compartment every 24 hours.

Refrigerator Models RM-45 and RM-60 require periodic manual defrosting. To defrost, turn the thermostat knob to zero (0). Check the drip tray to be sure that it is positioned to collect the melting frost. When defrosting is completed, set the thermostat to the normal position and empty the tray.

Periodic maintenance procedures are described in the Instruction Booklet which is furnished with each refrigerator.

Components in Dometic refrigerators are warranted for various periods from 3 months to 5 years. Refer to the warranty policy, included with each refrigerator, for specific information. Warranty service and parts may be obtained from **DOMETIC SALES CORPORATION, P.O. Box 490, 2900 W. Mishawaka Road, Elkhart, Indiana 46514.** The telephone number is AC 219 523-4510.

On the West Coast contact **WARD & SON, INC., P.O. Box 3505, 15343 Proctor Avenue, City of Industry, California 91744.**

12. RANGE and OVEN

The Magic Chef Range installed in your coach is equipped and adjusted for use with LP gas. To light the range burner hold a lighted match to the edge of the burner orifice ring and turn the burner control knob to the "ON" position. The primary cone of the flame should be approximately ½″ long. For adjustment instructions refer to the Installation and Service Manual which is provided with each range.

continued on next page

Range and Oven (cont'd)

The range top pilot valve has been turned off at the factory to prevent accidental gas build-up in the coach. Under normal conditions it is best to use a match to light the burners. When stopping for any length of time the top pilot may be turned on for added convenience. **BE SURE THIS VALVE IS TURNED OFF BEFORE LEAVING THE CAMP SITE.** Turn the valve clockwise to close it. Turn only enough to cause the pilot flame to go out. Excessive tightening of the valve screw will damage the seat.

How the Oven System Operates

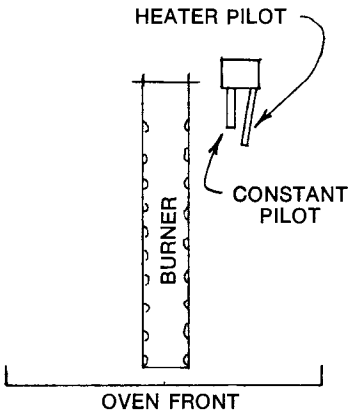
When the oven thermostat is turned on, gas will flow to the heater pilot, which will be ignited by the constant pilot flame. The flame from the heater pilot will heat the responsive element of the safety valve and open the valve seat allowing gas to flow to the oven burner. The burner then is ignited by the standby pilot flame.

When the oven reaches the set temperature, the thermostat will shut the gas off to the heater pilot, the capillary will cool closing the valve seat and shut off the gas to the oven burner. When the temperature drops, the thermostat will again allow gas to flow to the heater pilot, activating the safety valve and allow the oven burner to be relit. This action will continue throughout the cooking period.

Oven Lighting Procedure

A. The shut off valve for the Safety Control gas supply line is located on the oven control. Depress the oven control knob and turn counterclockwise to the "OFF" position. This will allow gas to flow to the constant pilot.

B. Light the Constant Pilot. This is the small tube located at the back of the oven, just to the right of the main oven burner. Use a match or straw to introduce a flame to the end of the pilot tube. See illustration at right.



C. Turn the oven Control Knob to 300° F. temperature setting on the dial. This will allow gas to flow to the heater Pilot Tube, to be ignited by the Constant Pilot.

The Range Oven is equipped with a safety ignition system that requires a minimum of 30 seconds to operate after turning the oven knob on.

After the oven burner has lighted, set the control knob to the desired temperature. Turn the oven control knob to "OFF" when the oven is not in use. This will allow the constant pilot flame to burn while the coach is parked.

To turn off the constant pilot, depress the control knob and turn clockwise to the "PILOT OFF" position. **ALWAYS PLACE THE CONTROL KNOB IN THE "PILOT OFF" POSITION WHEN TOWING THE COACH.**

The Magic Chef model 728DR Range is warranted to the original purchaser for a period of **90 days** according to the terms of the warranty policy. Warranty service and parts may be obtained from: **MAGIC CHEF, INCORPORATED, 3333 Hammond Avenue, Elkhart, Indiana 46515.** The telephone number is: AC 219 264-9578.

On the West Coast you may contact **MAGIC CHEF, INCORPORATED, PAN PACIFIC DIVISION, 245 North Vineland, City of Industry, California 91744.**

13. RANGE HOOD

The Range Hood is equipped with a filter, fan and sidewall duct to filter and discharge fumes and cooking odors from the coach. The filter may be removed for cleaning by sliding it out. A 12-volt lamp provides illumination of the cooking area. This lamp uses a 25 watt, 12-volt standard base bulb.

14. RUNNING GEAR

Suspension

Avion Coaches are equipped with Smooth-Glide suspension. The rubber springs require no lubrication. They may be washed with soap and water to remove road dirt.

Wheels

The wheels on each coach are electronically balanced on the drums. Should it be necessary to remove a wheel from a drum, place a reference mark on both parts so that the wheel may be remounted in the original position. This precaution will maintain the factory balance, as long as the tire is not removed from the wheel.

The tandem running gear is equipped with chain hooks which make it possible to change a flat tire without the aid of a jack, or to "chain" the axle so that you can drive with the tire left on, or removed, to a tire repair station. For instructions on how to use this exclusive feature see "Flat Tire" in Section V of this manual.

continued on next page

Running Gear (cont'd)

All suspension mounting bolts should be checked periodically to be sure that they are tight. The wheel bearings should be packed with grease and adjusted every 5,000 miles. Wheel lug bolts should be torqued to 100 lbs. Check these at the end of the first 100 miles and before starting each trip.

Brakes

The 22-ft., 25-ft., and 28-ft. models are equipped with 10″ electric brakes. The 31-ft. model is equipped with 12″ brakes. Adjustment of the coach brakes should be done by a dealer's service department, or by a competent automotive mechanic. The method of adjustment is the same as most automotive brakes.

The axle system on your coach has been designed to provide adequate cargo capacity.

Tires

The 31-ft. model is equipped with Firestone H78-15 Deluxe Champion® Sup-R-Belt tires, load range D. These tires should be inflated to 40 PSI. They are sturdy, long-mileage, bias-belted tires from Firestone – the same tires that are furnished on many of America's finest new cars. Super-strong fiberglas belts under the tread provide increased tire mileage and more resistance to impacts and punctures than conventional tires. Deeper, wider tread gives you a wider tire footprint for improved traction on wet or dry pavement, greater safety at all normal driving speeds, and improved handling and quicker steering response than conventional tires.

The 22-ft., 25-ft., and 28-ft. models are equipped with Firestone H78-15 Strato-Streak® tires, load range B. Cold inflation pressure is 32 PSI. This new tire is concave molded, giving the inflated tire a flat tread contour. That means more rubber on the road for longer mileage and better handling and steering response. The wider 7-rib tread design gives better traction and stopping on wet pavement. Dual white strip styling complements the modern design of your new Avion Coach. Plus, the Strato-Streak tire has four full plies of rugged nylon cord for protection against road hazards.

Your Firestone tires carry a lifetime guarantee. Tire sizes and load ratings used as original equipment on Avion Coaches have been approved by Firestone Engineering Department.

If you should require an adjustment on a faulty or defective tire, take the tire to a Firestone store and they will make an adjustment according to the terms and conditions of the guarantee. **DO NOT THROW A DEFECTIVE TIRE AWAY.** You must have it to get an adjustment.

When storing coaches for an extended period of time, block up the axles to remove weight from the wheels and prevent flat spots from forming on the tires. Reduce tire pressure to 10 lbs. Re-inflate to recommended pressure before removing blocks.

15. CONVERTER

This coach is equipped with a Model PD-708 converter. It is located on the floor at the right front corner of the coach. It provides 12-volt direct current whenever the power cord is plugged into a standard 110-120-volt, 60 cycle AC source. The converter has two output circuits. One circuit supplies the energy for the 12-volt lights and motors in the coach. The second circuit provides the energy to recharge the batteries, as needed. This model is designed to provide maximum power even when the batteries are not installed in the coach.

The converter has a built-in switching relay which isolates the self-contained batteries whenever the power cord is connected to 115-volt AC source.

When the power cord is disconnected the relay automatically connects the two coach batteries to the interior lighting system so that service will not be interrupted.

Both the converter output circuits are protected with built-in circuit breakers. If a short or overload is occurring, a 7 to 10 second clicking sound will be heard as the automatic reset breaker clicks off and on. **DO NOT PERMIT THE BREAKER TO CONTINUE TO CYCLE.** Prolonged cycling will cause heat build-up in the 12-volt circuits, resulting in damage to the coach wiring.

The Model PD-708 converter is equipped with a removable electronic circuit board. Should the 12-volt circuitry in the converter fail to operate properly, the board can be replaced without the necessity of exchanging the complete converter. The circuit board may be removed by loosening the two nuts which retain it and by disconnecting the wiring plug attached to it. These parts are located behind the converter end panel. Do not attempt to remove them until the converter is disconnected from the wall outlet.

The PD-708 converter is warranted by the manufacturer for a period of one year, according to the terms and conditions of the warranty certificate. Warranty service or replacement circuit boards may be obtained from **PROGRESSIVE DYNAMICS, INCORPORATED, P.O. Box 168, Marshall, Michigan 49068.** Their telephone number is: AC 616 781-4241.

16. BREAK-AWAY SWITCH

The Break-Away Switch is provided as a safety feature. It is equipped with a steel cable which must be anchored to the towing vehicle at the time of hook-up. If the coach should be accidentally disconnected from the towing vehicle, the cable will pull the switch pin causing the coach brakes to be applied automatically.

The removal of the pin from the switch closes the brake circuit, applying electrical energy from the coach battery to the brake magnets. Replacing the switch pin opens the circuit, releases the brakes and allows the coach to roll free again.

17. INSTRUMENT SIGNAL CENTER

The Signal Center is located in the overhead cabinet at the front of the trailer.

The panel offers the following features:

A. Barometer.

B. Panel Light. Depress the "panel light" switch to illuminate the two panel meters. This light uses a type 53, 12-volt bulb.

C. Water Pump Switch. This switch should be turned on when using water from the storage tank. Be sure the switch is turned off when traveling, or when leaving the coach unattended.

D. Holding Tank Level. The indicators for this tank are calibrated to show "½" and "F" for full. Depress the right end of the switch button to obtain a reading.

E. Water Level Indicator. When the left end of the switch is depressed, small lights indicate "0", "¼" and "½" full. A small amount of water is required in the storage tank before any light will operate.

F. Battery Condition Meter. The meter is located on the left side of the panel, and operates only when the switch is depressed. To determine battery condition, disconnect power cord (or turn off main disconnect breaker) turn off all lights and fans and depress switch. The batteries are in need of charge if the meter needle is in the "LOW" range. Fully charged batteries will read "FAIR" or "GOOD".

G. Ammeter. This meter is located on the left side of the panel. It indicates whether the battery is being charged or discharged. It operates continuously.

H. Polarity Indicator. Two panel lights are provided to show polarity and "power on" whenever the 115-volt power cord is plugged in. The light on the right side of the panel indicates correct polarity. Reversed polarity is indicated by the light at the extreme left side of the panel. If no light shows on either side, power may have been turned off or cord disconnected.

The signal center is warranted for a period of one year. For warranty work, service parts or information contact: **WEMAC, 3433 Harvard, Santa Ana, California 92704.** Defective panels returned to this address within the warranty period will be repaired at no charge.

18. AIR CONDITIONER (Coleman – Opt.)

The Coleman Polar Pal air conditioner is designed to provide comfort in a wide variety of applications. The unit is turned "ON" or "OFF" with the selector switch. Use "LO FAN" or "HI FAN" setting on selector switch for air circulation during mild weather.

Use "HI-COOL" and maximum thermostat setting for hot, humid weather. Use "HI-COOL" and medium thermostat setting for hot, dry weather. Use "LO-COOL" and maximum thermostat setting for mild, humid weather.

Clean the filter regularly. Wash in mild suds water, rinse thoroughly and dry. Occasionally, check the outdoor coil for leaves, lint, paper, etc. This coil grill must remain free and clear for efficient cooling.

Check the air inlet above the filter occasionally. Remove lint or other foreign material with a brush or vacuum.

NOTE: After air conditioner has been shut off, it will not start again for approximately 5 minutes.

Both the Coleman MACH I (10,000 BTU) and the MACH II (12,000 BTU) air conditioners are warranted for a period of one year. Warranty terms and conditions are described on the Certificate supplied with each unit.

Warranty service and parts may be obtained from any Coleman Recreational Vehicle Service Center. Refer to the service center list provided with each air conditioner.

19. TV ANTENNA (Opt.)

The BRAUND RANGER VHF/UHF roof mount TV antenna operates entirely from inside the coach. BE SURE TO CHECK THE AREA OVER THE ANTENNA before attempting to operate.

1. To raise the antenna, rotate the crank counter-clockwise until the stop is reached.
2. Rotate the antenna by pulling the "rotate knob" downward to disengage it from the lockplate and turn counter-clockwise. The antenna can be locked in any desired position by releasing the knob.
3. To lower the antenna, first pull and rotate the knob fully clockwise to the stop, then turn the crank until the antenna is heard to drop into the travel support bracket on the roof. NOTE: **Avoid straining the crank – very little effort is required in lowering. Check for obstructions if resistance is encountered.**

continued on next page

TV Antenna (cont'd)

RAISE THE ANTENNA BEFORE ATTEMPTING TO RAISE THE REAR CEILING VENT COVER. **BE SURE TO LOWER ANTENNA BEFORE TOWING THE COACH.**

The antenna is warranted for a period of 2 years, according to the conditions listed on the warranty card. Warranty service, parts and information may be obtained from **BRAUND MANUFACTURING COMPANY, 730 East Michigan Avenue, Battle Creek, Michigan 49017.** The telephone number is: AC 616 963-3855.

20. OGDEN WATER PURIFIER (Opt.)

The Ogden Water Purifier is designed to remove harmful bacteria, odors and impurities from your drinking water. It uses replaceable cartridges which have a capacity of from 200 to 500 gallons. The cartridge should be changed when the water begins to run slowly.

Use the following procedure to install a new cartridge:

1. Turn off water supply and open nearby water faucet to relieve the water pressure.
2. Remove wing-nut and cover from the purifier.
3. Remove used cartridge and clean inside of unit with stiff brush and rinse thoroughly.
4. Clean upper and lower seals in cover and bottom of purifier body. Replace seals if broken or deformed.
5. Install new cartridge in purifier and replace cover and wing-nut.
6. Turn on water and allow it to enter unit and wet the new cartridge.
7. After cartridge is wet, tighten wing-nut firmly by hand. **DO NOT USE A WRENCH.**
8. Allow water to flow from purifier for about 5 minutes for purposes of activation.

Gasket sets and replacement cartridges, Type SM-1, may be obtained from many trailer supply stores, from many Avion Dealers, or from:

Avion Service Corporation
1576 East Empire Avenue
Benton Harbor, Michigan 49022

Western Ogden Purifier Corporation
7063 Vineland Avenue
No. Hollywood, California 91605

21. STEREO TAPE PLAYER (Opt.)

The Automatic Radio, Model GES-8111 stereo cartridge tape player, provides music from any pre-recorded 8-track tape cartridge. Four track tapes may be played with the use of a "Gidget" adapter.

Full instructions for operation and cleaning will be found in the coach warranty package. Tape cartridges should be protected when the coach is not in use. Place them in a plastic bag and store in a place where they will not be exposed to excessive heat, cold, or humidity. Avoid storing near a strong magnetic field, as this may cause distortion or erasure on the tape.

Both AM and FM radio cartridges are designed to insert in a tape slot, converting the player to the type of radio desired. **CAUTION: BEFORE INSERTING RADIO CARTRIDGE – CHANNEL SELECTOR MUST BE IN POSITION 1 (ONE). FAILURE TO DO SO MAY DAMAGE THE CARTRIDGE.**

Each coach is provided with a radio antenna, stereo speaker wiring and 12 V.D.C. power cable. These wires terminate in the overhead cabinet at the front of the coach. The antenna wire has a standard plug on the end, ready to insert in the tape player jack. The 12-volt D.C. wires are connected directly to the tape player, with a type 3AG, 4 amp. fuse inserted in the positive lead. This wire originates at the fuse block on the front coach wall. For full stereo, four speakers are used. They are located at both ends of the front cabinet and in a rear-facing closet panel on each side of the coach. Color-coded pairs of wires carry the sound to each of the speakers.

The AUTOMATIC RADIO TAPE PLAYER is warranted for a period of one year, according to the terms of the warranty policy. **For service at any authorized warranty station – call Western Union – Operator 25.**

SECTION V

TROUBLE SHOOTING

AIR CONDITIONER

Trouble: Will not run.

Cause and Remedy:

a. Power Cord not making good connection at parking area service receptacle. Make sure that plug is fully inserted and the weight of the cord does not pull it from the receptacle.

b. Circuit breaker is in "Off" position. Reset.

Trouble: Does not cool properly.

Cause and Remedy:

a. Dirty filter. Clean and replace.

b. Low voltage from source and compressor will not run. Move to spot where voltage is proper.

BATTERY

Trouble: Batteries do not charge while coach is being towed.

Cause and Remedy:

a. Blown fuse in battery box. Replace with correct size.

b. Poor connection at hitch. Clean 7-wire connector contacts and reconnect.

c. Charge wire not "Hot". Rewire car so charge wire is "Hot".

Trouble: Batteries do not charge when 25 ft. Power Cord is connected to 120-volt source.

Cause and Remedy:

a. Power cord is not making good contact at receptacle. Check connection.

b. Blown fuse in battery box. Replace with correct size.

c. Low line voltage at 120-volt source. Use outlet nearer to power source.

d. Circuit Breaker is in "Off" position. Check and reset.

Trouble: Both batteries dead, power cord not plugged in.

Cause and Remedy:

a. Check for light or fan left turned on while trailer was unattended for an extended period. Turn off the fixture or appliance which was accidentally left on. If unable to find the cause of discharge, remove the battery box fuses until a service man can correct the trouble.

Recharge dead batteries as soon as possible. Allowing them to remain in a state of discharge for any length of time will cause permanent damage.

When plugging in the trailer power cord to charge dead batteries, be sure to do so at a time when the batteries can be observed during the charging cycle. Inspect the battery cases periodically for signs of heating or boiling of the electrolyte. IF HEATING OCCURS, DISCONTINUE CHARGING AT ONCE TO AVOID CAUSING PERMANENT DAMAGE.

Contact your local auto service station, or your nearest Avion Dealer for assistance in recharging batteries that have a tendency to heat up. This condition may be a sign of temporary battery damage.

Trouble: One battery dead.

Cause and Remedy:

a. Poor battery connections. Clean terminals and tighten connections.

b. Defective battery. Replace. See warranty procedure on page 10.

BRAKES

Trouble: No brakes.

Cause and Remedy:

a. Broken wire in brake circuit. Use continuity tester or voltmeter to trace brake wires and splice.

b. Poor connection between car and coach. Clean terminals and check for broken wire at the 7-wire connector.

Trouble: Unequal brakes.

Cause and Remedy:

a. Broken wire at brake drum. Locate and splice.

b. Improper shoe adjustment. See a service shop.

Trouble: Poor brakes, brakes inadequate.

Cause and Remedy:

a. Inadequate voltage to brake magnets. Check brake control for good connection to battery.

b. Brake shoes need adjusting. See service shop.

Trouble: Brakes lock and will not release.

Cause and Remedy:

a. Short in break-away switch. Replace.

b. Break-away switch pin has been pulled. Replace pin.

c. Incorrect brake adjustment. Too much shoe clearance. Have brakes re-adjusted.

Trouble Shooting (cont'd)

CONVERTER

Trouble: Loss of D.C. power.

Cause and Remedy:

a. Power cord may be disconnected. Check service receptacle and plug.
b. Breaker off. Check breaker box in coach closet and reset.

Trouble: Circuit breaker feeding power converter circuit continues to break.

Cause and Remedy:

a. Bad diode in converter. Have converter replaced or repaired.

Trouble: Converter does not charge batteries.

Cause and Remedy:

a. Blown fuses in battery box. Disconnect wire from fuse box to battery positive post. Replace fuses, then reconnect wire.

FUSES

Trouble: Replaced fuses continue to blow.

Cause and Remedy:

a. Loose wiring connections. Tighten all wire clamps and terminals.
b. Poor fuse contact. Inspect fuse clips to be sure they are not bent. In the battery box two 20 amp fuses are used in parallel. When replacing these fuses, disconnect the wire from the positive battery terminal to prevent throwing the full load into a single fuse while making the replacement.
c. Improper fuse size. See page 10 for recommended fuse sizes.
d. Incorrect wiring of batteries or fuse block. Refer to wiring illustration on page 10.
e. Short in wiring. See nearest Avion Dealer.

REFRIGERATOR – DOMETIC

Trouble: Refrigerator does not freeze satisfactorily.

Cause and Remedy:

a. Jet orifice clogged. Remove burner barrel, unscrew jet and blow clear or wash in alcohol. **Do not** use a pin or wire to clean orifice.
b. Check the leveling of the refrigerator.
c. Flame has gone out. 1) Gas in the bottle is used up – refill. 2) Feeler point of the flame failure device is not heated enough by flame – refer to figure "5" in the Dometic Instruction Booklet. 3) Clogged by-pass screw – clean or exchange it.
d. Air circulation around cooling unit is restricted. Be sure that refrigerator is properly ventilated.
e. The evaporator is heavily coated with frost. Defrost by setting thermostat to zero.
f. Flue baffle not inserted into the central tube of the cooling unit.
g. The thermostat is incorrectly used. See paragraph on thermostat in the Instruction Booklet.
h. Gauze in burner head clogged. Clean.
i. Burner damaged. Replace.
j. Burner may be dislocated. Relocate.
k. Wrong gas pressure at burner. Have pressure checked at burner and at the gas bottle. Pressure at the burner must not fall below 11″ W.C. when thermostat is set on "Max".
l. Improper operation of the thermostat. Thermostat will have to be changed.

Trouble: Odor from fumes.

Cause and Remedy:

a. The flame touches side of the boiler due to dislocation of the burner. Relocate. Burner dislocation may also cause smoke and discoloring of walls and ceiling.
b. Burner damaged. Replace.
c. The flame touches flue baffle. 1) Burner damaged. Replace. 2) Flue baffle too low. Correct the position of baffle.
d. Flue tube is dirty. Clean flue as follows: Remove burner barrel and cover the jet. Remove flue top and baffle. Clean flue with special flue brush. Clean baffle and burner head before putting them back in place.

TIRES

Trouble: Overheating or wearing unevenly.

Cause and Remedy:

Improperly inflated. Refer to inflation information on page 16.

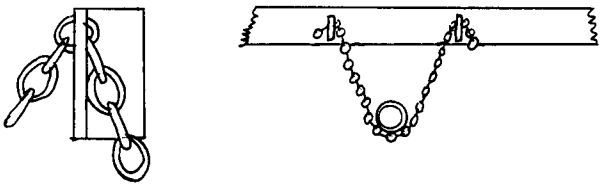
Trouble: Flat tire.

Cause and Remedy:·

On a tandem axle coach with the exclusive chain hooks, supplied as standard, it is possible to "chain up" the axle with the flat and drive to a tire repair station on three wheels. The flat tire may be left on or removed from the trailer while "limping in" when the axle is chained up. By utilizing the chain hooks it is also possible to remove a flat tire and replace it with a spare when no jack is available.

continued on next page

If you have a jack, you can "chain up" the axle by placing the jack under the axle at the end which has the flat and raising it as high as it will go. Take the chain, which is supplied and which is exactly like the safety chains on the front of the coach, and insert one end into the slotted angle iron welded to the frame of the trailer. Place the chain under the slot of the other angle iron as tightly as possible. Be sure to hook the chain as illustrated below.



Remove the jack. The tire should clear the road slightly. If it is convenient you can remove the tire. If not, you may leave it on the axle. In any case you should drive slowly while the axle is "chained up" and refrain from driving any further than necessary.

For ease in removing a wheel from a tandem axle coach, first jack up the good wheel on the same side as the flat. Place a 4″ or 5″ block under the good tire and lower the wheel onto the block. Now place the scissor jack under the axle with the flat tire and lift it off the ground just enough to allow removal of the wheel, and mounting of the spare.

When re-tightening the lug bolts, torque them first to about 25 FP skipping every other one so that the wheel is pulled into the drum uniformly. Continue around the wheel in the same order, increasing the troque until all bolts are torqued to 90-100 Foot Pounds.

WARNING: Be sure to place blocks against both wheels on the side of the trailer opposite the flat tire to prevent the coach from rolling while the wheel is being changed.

To change a tire when no jack is available, the following steps will permit lifting the flat tire off the ground:

1. Drive the flat tire up on a wedge or stack of boards that is approximately 5″ high.
2. Chain up the axle as described above. Adjust the chain as tight as possible.
3. Pull the wheel with the flat tire off the blocks and pull the good wheel up on the same blocks. This should raise the flat tire off the ground to permit changing.

This procedure is suggested as an emergency measure only.

WARNING: Never get under the coach when it is blocked up.

Caution: Do not discard a defective tire, it will be necessary to present it if an adjustment is sought.

WATER PURIFIER

Trouble: No water flow, or very slow flow rate.

Cause and Remedy:

a. Restriction in water line. Make sure all valves are open and there are no kinks in copper tube lines.
b. Low water pressure. Use low pressure cartridge if water is pre-chlorinated.
c. Plugged cartridge. Install new one.

Trouble: Very short cartridge life.

Cause and Remedy:

a. Large amount of suspended matter in raw water. Install new cartridge.

Trouble: Off-taste, color, or odor in purified water.

Cause and Remedy:

a. Install new cartridge.
b. Reduce flow rate through purifier.

Trouble: Suspended matter in purified water.

Cause and Remedy:

a. Purifier is leaking internally. Install new rubber kit.

WATER HEATER

Trouble: Pilot light will not stay lit.

Cause and Remedy:

a. Pilot burner needs adjustment. See Atwood Bowen Operating and Installation Manual for adjustment instructions.

Trouble: Will not heat on "Electric".

Cause and Remedy:

a. Power Cord not making good connection at parking area service receptacle. Make sure that plug is fully inserted and the weight of the cord does not pull it from the receptacle.
b. Circuit breaker is in "Off" position. Reset.
c. Switch on heater jacket is turned off. Turn on.
d. Water heater cord is not plugged into wall outlet. Plug in.

continued on next page

e. Heater element overheated. Energy cut-out was activated. Remove electrical box cover on heater jacket and depress red "RESET" button. NOTE: It may be necessary to temporarily disconnect copper water line to facilitate removal of cover plate.

WATER PUMP

Trouble: Water from city pressure passes back through the pump and causes water storage tank to overflow at fill spout.

Cause and Remedy:

a. Improper seating of pump valves. Drain or pump water system dry. Remove, disassemble and clean dirt from valves. Inspect for damage and replace. When reassembling be sure to tighten the four bolts evenly to prevent cracking the pump base. All hose clamps should be tightened securely.

b. Bi-pass valve under the sink may not be completely closed. Tighten as needed.

Trouble: Pump runs, but does not deliver full supply of water.

Cause and Remedy:

a. Dirt in filter. Clean and replace. See instructions in Section IV, Item 4.

b. Severe kinking in pump hose. Adjust the hose to eliminate the restriction.

c. Water tank empty. Refill.

Trouble: Pump will not run.

Cause and Remedy:

Blown fuse. Check fuse block at front of coach. Replace with correct size fuse.

Trouble: Pump runs when no water is being used.

Cause and Remedy:

a. Bypass valve is open, allowing water in system to circulate. Close valve.

b. Leak in water system. Examine all plumbing lines and water heater drain.

STEREO TAPE PLAYER

Trouble: Excessive hum.

Cause and Remedy:

a. Blown fuse between batteries and trailer 12-volt electric system. Replace fuse or fuses.

b. Loose wire connections at battery or at fuse block. Tighten connections. Batteries must be in the 12-volt circuit to reduce hum.

Trouble: Does not play.

Cause and Remedy:

Blown fuse. Check the line fuse located behind the player, and the fuse block at the front of the coach.

SECTION VI

WARRANTY INFORMATION

Service, repairs and parts for your Avion Coach may be obtained through any of the many Avion dealers across the country, or from:

Avion Service Corporation
1576 E. Empire Avenue
Benton Harbor, Michigan 49022
Telephone – 616-927-2271

The Avion Service Corporation is able to perform virtually any of the service work in accordance with our suppliers' warranty.

Avion Service Corporation operates on an appointment basis only. For a service or repair appointment call or write in advance.

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Warranty service and parts for many components that are manufactured by Avion suppliers may be obtained direct.

Addresses of these suppliers are found in your AVION WARRANTY, OPERATION and SERVICE KIT envelope.

- Turn Refrigerator on gas
- outside door locked
- dumps holding tank
- drain shut
- remove stop blocks + put in trailer + jacks
- window shut
- big cover on window shut
- TV in tub