

# Tires and Wheels

Your Avion is equipped with namebrand tires built to give thousands of miles of worry-free driving at sustained highway speeds. They are covered by the tire manufacturer's standard warranty. Any adjustment must be made by an authorized tire dealer who handles that particular brand.

## Tire Care

Tires that run either under-inflated or over-inflated will not perform as intended and will suffer erratic and premature tread wear. Consequently, you should check air pressure frequently with an accurate gauge. Inexpensive gauges that will give precise readings every time are readily available. **Never rely on pressure indicators that are built into service station air hoses.**

Always check air pressure when the tires are cold; that is, after the trailer has been stopped for three or more hours, or has been driven less than one mile from a cold start. Never bleed air from a hot tire (one that has been driven 10 or more miles at speeds in excess of 50 mph). It is normal for tire pressure to increase as much as six pounds per square inch (psi) when hot. Recommended tire pressure can vary according to model, type and size of tire and by the weight load being supported. **Inflate as close to the maximum recommended tire pressure as possible for best tread life and trailer stability. Maximum tire load and cold inflation pressure information may be found on the sidewall.**

Tire life can also be affected by frequency of rotation and adjustment of toe-in. Regular inspection and maintenance of these items can add many miles of tread life. See **Suspension**, page 41.

Tread is not the only part of a tire that can wear out prematurely. Sidewalls can weaken and crack from improper inflation, weight loads beyond design specifications, or the effects of air pollution and ultraviolet radiation. Park in shaded areas whenever possible and use tire covers in desert regions to block harmful rays from the sun.

If the trailer is to be out of service for any extended period, including winter storage, block up the axles to remove weight from the tires and to keep them from developing flat spots. Also reduce the air pressure to 10 psi in each tire.

**Important:** Inflate all tires to normal pressure before removing the blocks.

One additional tire care tip: Every time you check air pressure, also check tire valve stems for cracks, and tighten the valve cores. Air leaks from these sources can flatten a tire as quickly as a puncture.

## Wheels

All wheels are balanced at the factory. If the tire is removed from the wheel (such as to repair a flat), place reference marks on the sidewall and rim, so that the tire can be lined up again to retain balance. See following section on **Tire Changing** for more information.

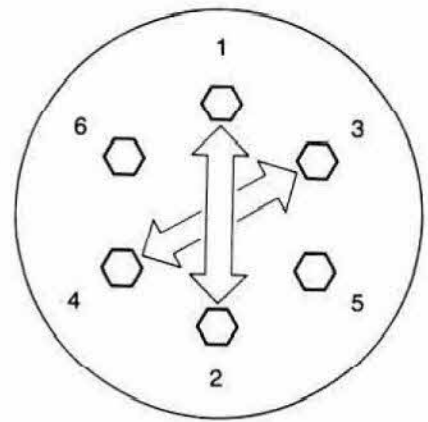
Wheel bearings should be repacked with grease and adjusted every 10,000 miles. Lug bolts should be torqued to 90-95 foot-pounds. Tighten spring hanger bolts and rocker arm link bolts until snug and then back off one half to three quarters turn. All suspension mounting bolts are self-locking.

## Tire Changing

Changing a tire on your Avion is no more difficult than changing one on your automobile, but there are some notable differences.

1. Place a jack **under the axle** of the tire you are removing. Then chock all other wheels and raise the jack until the tire barely touches the ground. This will take most of the weight off the wheel but will give you enough leverage to break the lug bolts free without the tire spinning.
2. Break the lug bolts free with lug wrench, but do not loosen.
3. Raise jack until tire is completely off the ground, unscrew all lug bolts, and remove wheel.
4. To reinstall the tire, first make sure that drum and hub are free of dirt, then lift wheel into place and line up lug bolt holes.

5. Start all lug bolts and then tighten by hand.
6. Lower the jack until tire barely contacts the ground, then finish tightening the bolts with lug wrench, using a criss-cross pattern. Bolts should be tightened to a torque of 90-95 foot-pounds.
7. Lower the jack completely and remove it. Also remove wheel chocks.
8. Recheck tightness of lug bolts after 100 miles and before each trip.
9. Handle wheels with care to avoid damaging their appearance.



Lug Bolt Tightening Sequence

**Note:** The riding characteristics of radial and bias-ply tires differ. We recommend that you do not mix the two types on the trailer.

## Tire Rotation

Trailer tires should be rotated every 5000 miles to promote even tread wear and long life. Rotate them sooner if irregular wear develops. The rotation pattern varies, depending on whether radial-ply tires or bias-ply tires are being used.

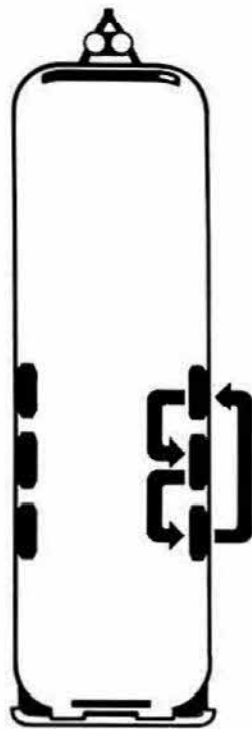
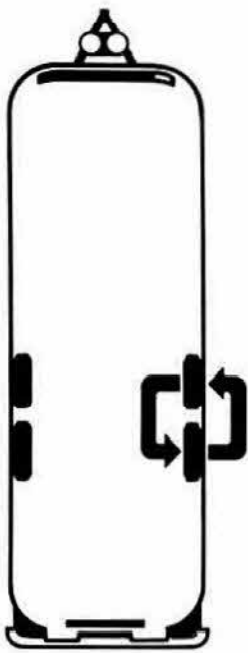
1. **Radial-Ply Tires.** Move front tires to the rear and rear tires to the front on the **same side** of the coach for dual axle trailers. For triple axle trailers move front tires to center position, center tires to rear and rear tires to the front on the **same side** of the coach.
2. **Bias-Ply Tires.** For double axle trailers move front tires to the rear on the **same side** of the coach. The rear tires **cross over** to the front; that is, left rear tire moves to right front and right rear tire moves to left front. For triple axle trailers move front tires to center positions, center tires to the rear on the **same side** of the coach. The rear tires cross over to the front.

The identical pattern should be used every time you rotate the tires, otherwise you will be nullifying the intended benefits.

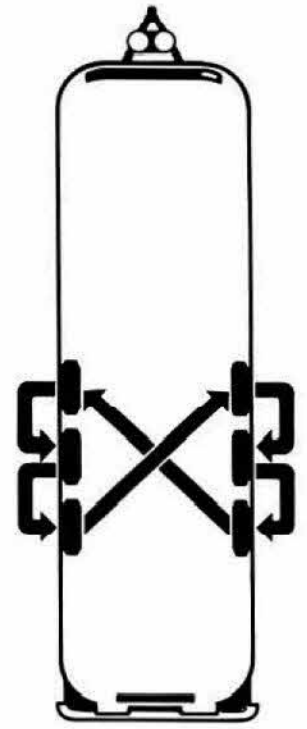
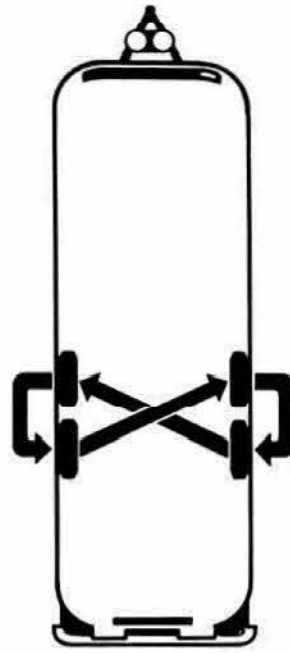
## Wheel Balancing

The wheels on your Avion were balanced at the factory for a precision ride. Therefore, whenever a new tire is installed on a wheel, it must be balanced. Do this as soon as possible for smoothest, safest ride. Refer to **Tire Changing**, earlier in this section, for more details.

**Tire Rotation**



Radial-Ply Tires



Bias-Ply Tires

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# Braking System

The electric brakes on your trailer are operated by 12-volt direct current from the tow vehicle. The brakes have been factory-calibrated for smooth, positive response. Routine periodic adjustments should be performed only by an Avion dealer service technician or other qualified mechanic.

## *Components of the Braking System*

The wiring system connecting trailer brakes with the tow car's electrical power begins and ends at the car battery and includes several major components, all of which must function properly for safety and responsive braking.

1. **Car Battery.** The connection is made at the starter solenoid's battery terminal or the positive post of the battery itself.
2. **Brake Controller.** The electric trailer brakes are automatically applied by the brake controller, which is mounted within easy reach of the tow car driver. When the car's brake pedal is depressed, the trailer brakes are actuated slightly before the tow car brakes, to keep the two vehicles in alignment. The lag time can be adjusted by turning the brake controller knob in accordance with instructions provided with the controller. **The new setting will be retained until a further adjustment is made.** The brake controller also has a manual feature, which allows you to apply the trailer brakes independently of the tow car brakes. To operate, move the control lever all the way to "manual" and hold it in that position. The lever is spring-loaded and will return to the "automatic" setting when released.

Select a brake controller that will be compatible with your Avion's electric braking system.

**Caution:** Do not install a fuse in the circuit between tow car battery and brake controller. A blown fuse would cause the controller to cease functioning both automatically and manually, causing loss of trailer braking power with no advance warning.

3. **Connector Plug.** The 9-way connector on the trailer hitch transfers electrical power from the tow vehicle battery to the trailer brakes and exterior lighting system. Keep the plug clean, tight, and protected from the elements.

4. **Break-Away Switch.** This fail-safe device is one of the most vital components in your Avion's braking system. It automatically actuates the trailer brakes instantly in the event tow car and coach accidentally uncouple while in motion. The break-away switch goes into operation when a pull pin linked by cable to the tow car is separated from the switch. This allows two contacts in the switch to close and complete an electrical circuit, which instantaneously applies the trailer's brakes and brings it to a stop. Power for this sequence is automatically switched to the on-board trailer batteries from the tow car battery, which stops furnishing power when the 9-way connector disengages during vehicle separation.

The steel cable attached to the break-away switch pull pin must be anchored to the tow car at time of hookup. We recommend securing this cable loop to the permanent frame of the tow car hitch, not the removable section of the hitch.

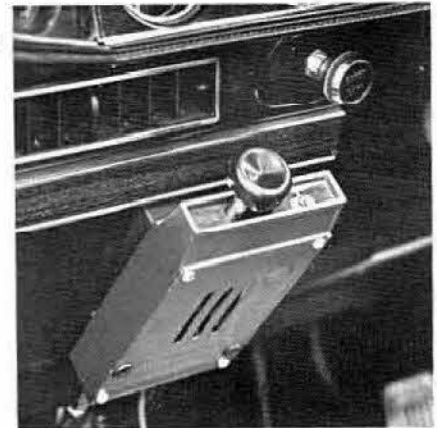
The pull pin should be removed and lubricated with light household oil every three months, to assure that it

will operate as intended. Before reinserting the pin, spray the inside of the break-away switch with an electrical contact cleaner to prevent corrosion.

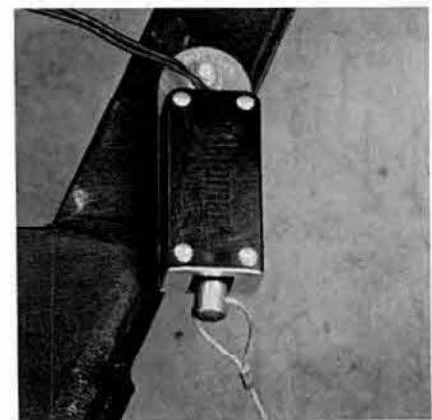
**Caution:** Do not leave pull pin out of the break-away switch for more than a few minutes, or it will run down the trailer batteries. For the same reason, never use the break-away switch as a parking brake.

5. **Trailer Brakes.** Your Avion's brakes are actuated by electrical energy, which is converted to mechanical energy to provide the braking power for smooth, safe stops. The greater the braking effort from the brake controller, the greater the braking force applied to trailer brake drums. You can monitor the application of this braking force either by using a brake controller with built-in indicator light, or by installing a separate indicator light on the tow vehicle dashboard. The light will glow whenever trailer brakes are activated, and will become increasingly brighter as braking power is intensified.

6. **Grounding.** The electrical circuit that operates your trailer brakes can be completed only by proper grounding back to the tow car battery. **A poor ground circuit from brakes to battery can be as detrimental to efficient braking as a poor primary circuit from battery to brakes.**



Brake Controller



Break-Away Switch

## Adjusting the Brakes

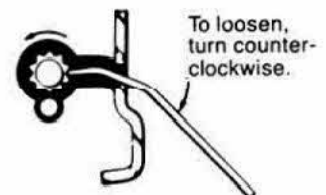
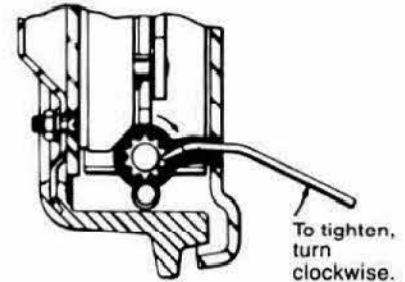
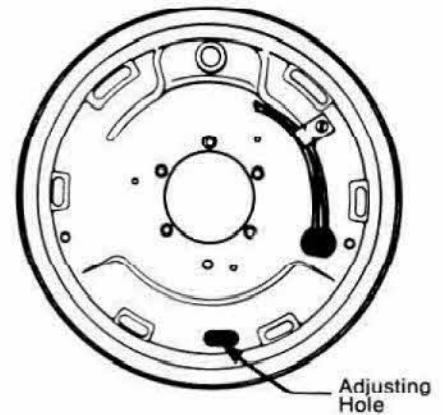
While it is recommended that brake adjustments be handled by qualified technicians, the following procedure should be used if you find it necessary to perform the job yourself.

1. Remove rubber plug from the adjustment hole at base of brake drum backing plate.
2. Raise wheel off ground with a lifting jack placed under the axle (see **Tire Changing**, earlier in this section).
3. Tighten brakes by inserting a brake adjustment tool or screwdriver blade into the backing plate hole. Turn adjustment screw while spinning the wheel. When wheel begins to drag heavily, back off just enough for it to spin freely. Replace adjustment hole plug, then lower and remove the jack and repeat the previous steps with all other trailer wheels.

## Braking Tips

1. **Never use trailer brakes alone for extended periods.** They were designed to stop the coach, not the tow car. Such action would place excessive loads on the brakes, causing overheating, loss of braking power (fading), and premature wear of shoe linings and drums.
2. **Never use the tow car brakes alone.** The added weight of your trailer more than doubles the load placed on car brakes, leading to the same results as using trailer brakes alone: Overheating, brake fade and rapid wear. Driving control is also hampered when tow vehicle brakes are used alone, due to the force of the trailer pushing against the car hitch. This is especially true on slick pavement or loose gravel, and can cause jackknifing.
3. **Always use the automatic brake controller.** This synchronized braking system enables you to drive in the manner recommended by the experts: Both hands on the steering wheel. The brake controller is properly adjusted when there is a slight "lead" on the trailer brakes. This braking resistance, combined with the tow car's engine pulling power, will keep the two vehicles correctly aligned and bring them to a safe, straight stop every time.

## Brake Adjustment



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# *Suspension System*

Avion's exclusive Adjust-A-Ride™ All-Wheel Independent Suspension represents a significant advancement in trailer suspension systems, combining European-type independent suspension at each wheel with adjustable split axles, to meet a variety of traveling conditions. Adjust-A-Ride™ was subjected to thorough testing by an independent testing agency before being introduced as standard equipment on all Avions.

Adjust-A-Ride's split axles absorb road shocks and vibrations right at the wheel, instead of transmitting them to the opposite wheel and then through the entire coach frame and body, as happens with standard one-piece axles. Heavy duty springs and single shocks at each wheel work in unison with the split axles to further cushion the smooth ride.

The result: Adjust-A-Ride™ keeps your new Avion tracking straight and true even over irregular surfaces, with less "whipping" action. The split-axle configuration also reduces trailer lean on turns, resulting in improved handling characteristics. This provides a stable, controlled, glass-smooth ride that makes your Avion what we believe to be the easiest-towing travel trailer ever built.

The unique Adjust-A-Ride™ system also permits toe-in/toe-out adjustment, a feature not found on solid axle coaches.

## Toe-In Adjustment

Toe-in simply means that the wheels on a given axle are closer together at the front end than at the back. For accurate tracking, maximum tread life and greatest fuel economy, your Avion should have a toe-in of zero to plus or minus  $\frac{1}{16}$ -inch on each wheel. Avion's Adjust-A-Ride™ allows you to make wheel alignment corrections yourself with minimal equipment. You will need a scissor jack and a  $\frac{15}{16}$ -inch socket wrench or large adjustable-end wrench.

1. Pull the normally-loaded coach forward with a tow vehicle a minimum of 25 feet on a reasonably level surface. Let it roll to a stop without applying the brakes. This will allow the wheels to assume a normal towing position.

2. Starting with any wheel, mark a point on the tread at the front of the tire. Measure the distance between that point and the chassis rail. Locate a corresponding point on the tread at the rear of the same tire, and measure the distance between it and the chassis rail. (See Figure A.) Repeat this step for each wheel.

If the difference between the front and rear measurements of a wheel is  $\frac{1}{8}$ -inch or less, the wheel is properly aligned; if it is greater than  $\frac{1}{8}$ -inch, a correction should be made.

3. Place a scissor jack under the inboard end of the axle, and raise it just enough to be snug. This takes the weight off of the bolt on which the axle is hinged. (See Figure B.) Note that several spacer washers are positioned on both sides of the axle bushing. The wheel is aligned by moving one or more washers from one side of the

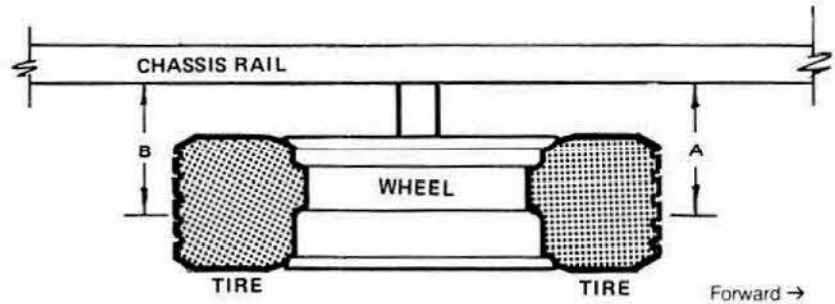


Figure A

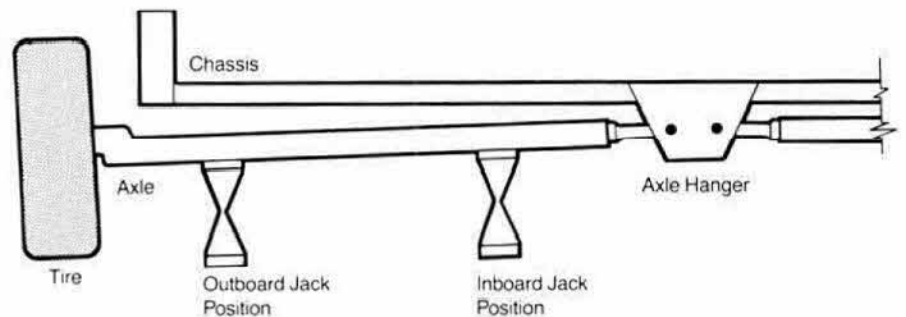
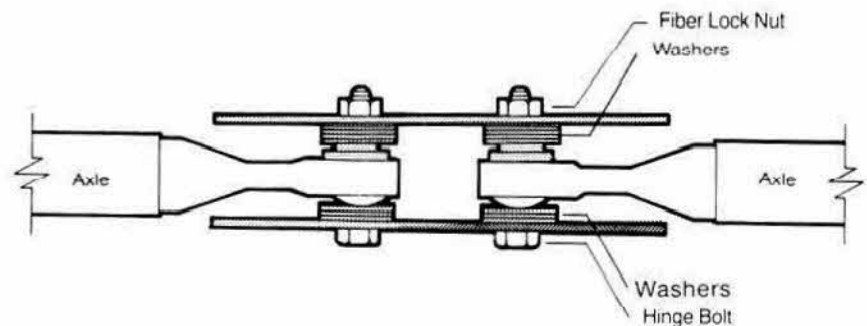


Figure B





axle bushing to the other. (See Figure C.) The number of washers to be switched is determined by the difference between measurements taken in step 2 (See Figure A.) One washer is moved for each  $\frac{1}{8}$ -inch difference. For example, if the measurements were  $7\frac{5}{8}$  inches at the front of the tire and  $7\frac{7}{8}$  inches at the rear, the difference of  $\frac{1}{4}$ -inch would represent two washers. The wheel is toed-out if the front measurement is greater, and is toed-in if the rear measurement is greater. (See Figure D.)

4. After determining how many washers are to be moved and where, count the number on each side of the axle.
5. Remove fiber lock nut and tap out the hinge bolt with a hammer and punch. If the bolt does not dislodge with a little effort, raise or lower the jack until bolt is freed.
6. Relocate washers as indicated in step 3. A large screwdriver may be required for leverage when installing the last one. (See Figure E.)
7. Replace the hinge bolt and fiber lock nut. Torque to 125 foot-pounds.
8. Lower the axle, remove scissor jack and check toe-in adjustment by repeating steps 1 and 2.

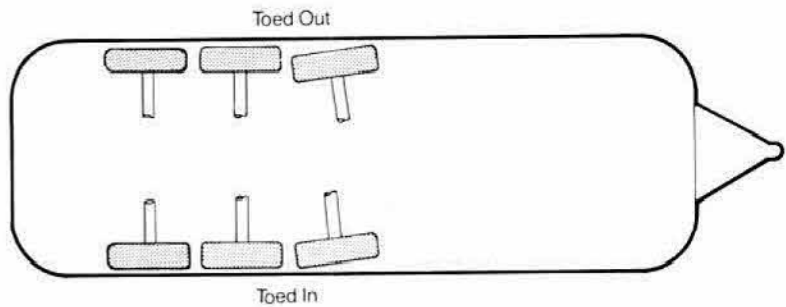


Figure D

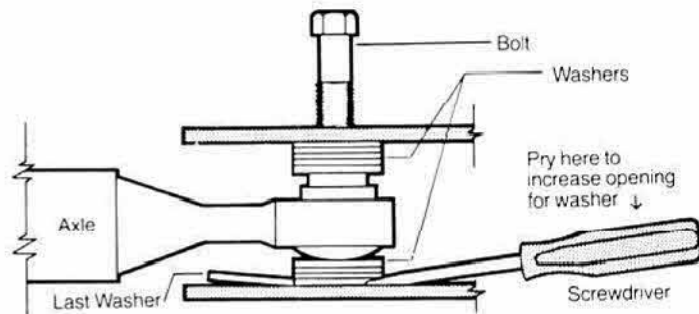
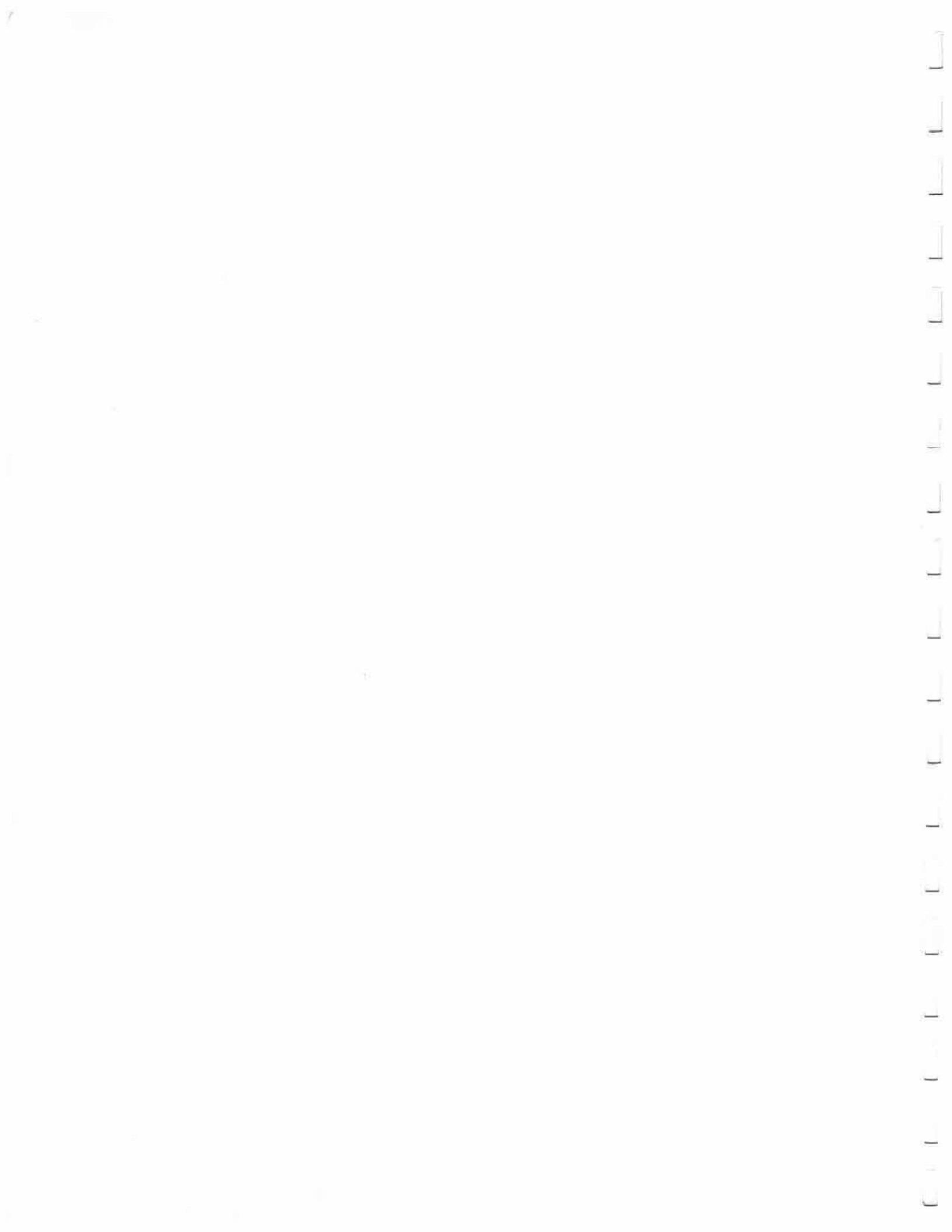


Figure E



# Interior

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# Furniture and Features

The interior of your Avion has been crafted without compromise for comfort and convenience, using materials selected for long life and ease of maintenance. While a large number of features have been included in a relatively small amount of space, extensive planning assures that everything you need is at your fingertips, yet not in the way.

The best way to fully enjoy and appreciate all of the engineering and design systems built into your coach is to thoroughly understand them. The following material provides detailed information on the location, operation and care of all of Avion's amenities.

## **Beds**

The beds in your travel trailer feature Sealy® Postupedic mattresses, considered to be among the finest on the market for comfort, support and durability. Turn them periodically for maximum benefit.

1. **Sofa-Bed Into Double Bed.** To convert sofa-bed for sleeping, grasp the front rail of the seat at the middle, lift it up slightly, and pull it out as far as it will go. Then lower the back cushion until it falls into place.

Revert to sofa arrangement by pulling the back cushion upright and pushing the front rail back to its original position.

2. **Sofa Into Bed.** To convert sofa into bed, simply remove back cushions.
3. **Lounge Into Double Bed.** To convert lounge into bed, remove boards stored under lounge seats, lay them across front edges of the facing lounge frames, and place seat back cushions in position on top of the boards. Reverse the process to set up lounge again.
4. **Dinette Into Double Bed.** To convert the dinette into a bed, stand the seat cushions on edge to allow room for table to swing down, then fold up the table leg and lift table free off its wall brackets. Swing the table downward to its lower position and rest it on the supports provided. Replace cushions to form the bed.

Convert back to dinette by first positioning the cushions so they will not interfere with movement of the table. Pivot table upward and engage the wall brackets, then extend the folded leg to vertical.

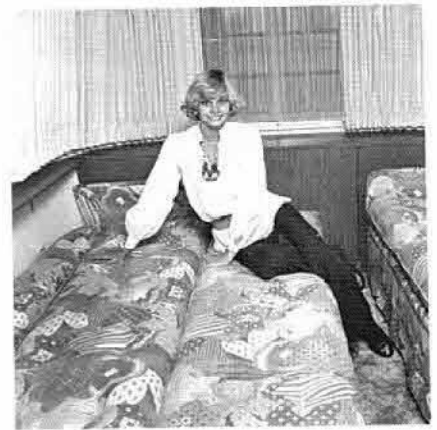
5. **Making Up Fixed Beds (Twin or Double).** If your Avion is equipped with fixed beds, they can be easily prepared for sleeping by lifting the mattress slightly, pulling it away from the wall, and tucking in the bedding.



Sofa Bed Into Double Bed - Step 1



Step 2



Step 3



Dinette Into Double Bed - Step 1



Step 2



Step 3



Step 4

## Extension Table

1. **Open the table** by swinging the table top up from the wall and into a horizontal position. Swing the leg down until it locks in a vertical position.
2. **Extend the table** by first releasing the latch located underneath, next to the leg. Lift table and leg slightly, and pull the telescoping frame all the way out. Insert individual leaves into the frame for desired table length, then push in the end leaf to close any gaps.
3. The table hinge is equipped with a slide to permit horizontal adjustment. Lift the table and leg slightly and pull toward the sofa for added comfort.
4. **Stow the table** by first removing the leaves, then lift table slightly off floor and push the frame back into its telescoped position under the table top. Center table under top, fold leg into stowed position, then swing the table down until it rests against the wall.

## Curtitions

Accordion-type curtitions allow you to change the interior configuration of the coach. They provide an open, spacious atmosphere when fully retracted, and serve as room divider when partially extended. They can also be fully opened and latched together for complete privacy, closing off the lounge/sleeping area from the rest of the trailer.

## Drawers and Storage Cabinets

All drawers are quality constructed of rugged poplar and feature dovetail joints for maximum strength and durability. They have been designed to remain tightly closed while traveling, and are opened by lifting slightly on the drawer knob and pulling out.

The overhead storage cabinets are hinged at the top and have two spring-loaded struts. Once opened, they will stay in that position until you close them. And once closed, they will remain that way to keep contents from spilling out during travel. Additional storage cabinets are provided under all beds and lounges.

There is even a swing-down utensil bin behind the front panel of the galley sink and a slide-out towel rack behind a door next to the gas range. They control clutter by keeping things out of sight yet handy.

## Roof Vents

The roof vents have been designed to function in any weather, letting in fresh air while keeping out precipitation. Air flow is controlled by two crank handles located at opposite ends of the vents. Each crank raises one end of the vent cover and can always be operated independently. If the vents are left open while traveling, only the rear portion should be raised.

To open a vent fully, rotate both crank handles counterclockwise; to close, rotate them clockwise. An electric fan inside each vent can furnish additional air circulation when the vent is open. A three-position fan switch (low-off-high) is located on the side of each roof vent screen.

Vent screens may be cleaned periodically to maintain maximum air flow and fan efficiency.

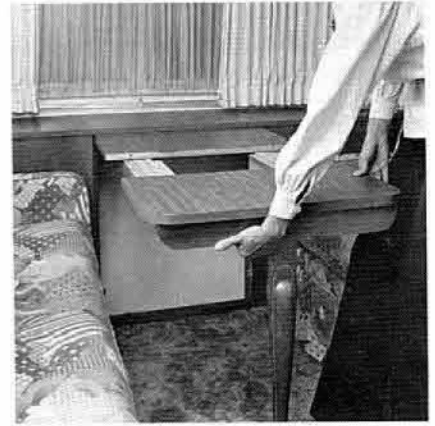
1. Remove the two crank handles with a Phillips head screwdriver.
2. Remove the six clutch-head screws holding the screen frame in place.
3. Wash screens in soapy water, taking care not to push the screening material out of shape. Allow screens to soak if there is any caked-on material. Rinse and wipe dry.
4. Reinstall screens with the clutch-head screws and attach crank handles.



*Fold-Up Table Opening – Step 1.*



*Step 2*



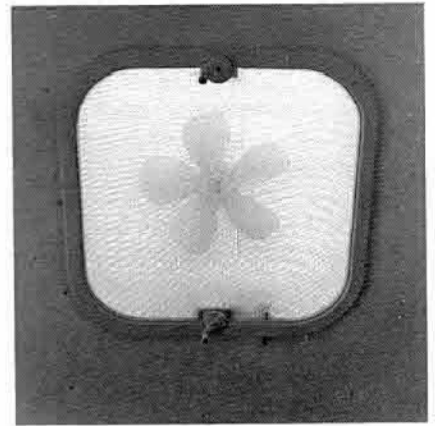
*Step 3*



*Curtitians*



*Towel Racks*



*Roof Vent*

## Emergency Window

The emergency escape window provides the safest and fastest exit when the main door is obstructed; it should be used only when absolutely necessary.

The emergency window's escape mechanism is operated by two quick-release latches that fit over projections at the bottom of the window frame. To open, grasp the latches and lift until they clear the retainers. The window is hinged at the top and will swing outward when pushed at the bottom.

**Caution:** The emergency window has been designed to separate from the top hinge and drop out of the way when opened beyond a certain angle. You can familiarize yourself with this feature by opening the latches and holding the window on both sides while pushing out slowly until it releases from the top hinge.

We recommend that you practice the escape procedure until it becomes automatic, and that you review it periodically. When practicing, do not permit the window to swing out far enough to disengage from the hinge. If it does, be prepared to catch it.

## Light Fixtures

The interior lighting system has been carefully planned to satisfy a variety of requirements throughout the coach. It gives you proper, convenient illumination when you need it and where you need it. See page 108 for bulb specifications.

1. **12-Volt fixture lights** are controlled by a on-off switch located on the individual fixture. For access to the bulb compartment, squeeze the flexible diffuser lens until it drops down (see photo). Reinstall by squeezing the lens and inserting it into the fixture frame.

2. The range hood light is operated by an on-off push button located on the hood frame between the light and exhaust fan. To replace the bulb, remove the retainer nuts from the hood light and exhaust fan on-off buttons and let the frame drop down, allowing access to the bulb compartment.

3. **Area lights and reading lights** are controlled by an on-off switch on the rim of the fixture itself. They have no diffuser lens and can be swiveled to concentrate light where desired. To remove the bayonet-type bulb, simply push up, give a ¼ turn and let it drop out. To install a new bulb, line up the bayonet studs with the slots inside the socket, then push up and give it a ¼ turn until it locks in place.

**Caution:** The lamp cones on these fixtures become too hot to touch. Use a protective cloth when adjusting their position.

4. **Rear bathroom mirror lights** house three bulbs and offer two lighting combinations: One bulb on, or all three bulbs on plus OFF. They are operated by a switch at the bottom of the fixture. To remove the diffuser lens for bulb replacement, squeeze the sides of the lens until it releases.

## Shower/Tub Enclosure

The enclosure is molded of special fiberglass-reinforced polyester . . . a high-strength, long-wearing material specially designed to retain its beauty for many years with proper care. Clean the shower/tub with soap or detergent, or a special tub and tile product. **Never use abrasive scouring powders.** We suggest applying a coat of paste wax before using the shower/tub for the first time, and again after each heavy cleaning. This will protect the surface from stains and discoloration.

The vinyl shower curtain should be sprayed with clear water from the hand-held shower head after each use, to remove soap spots. To launder the shower curtain, hand wash or machine wash on delicate cycle using medium

temperature and a mild soap. **Do not use bleach.** Remove from machine before final spin cycle and allow to drip dry. **Do not iron vinyl curtains.** If your shower curtain has a fringe attachment, it should be hand washed only.

The shower/tub enclosure also features a removable clothes rod in addition to the regular shower curtain rod.

## Shower Head and Bathtub Spout

A single mixer knob is used to control water flow and to adjust temperature. Push knob back to turn on water, pull forward to turn it off, and rotate to adjust temperature setting.

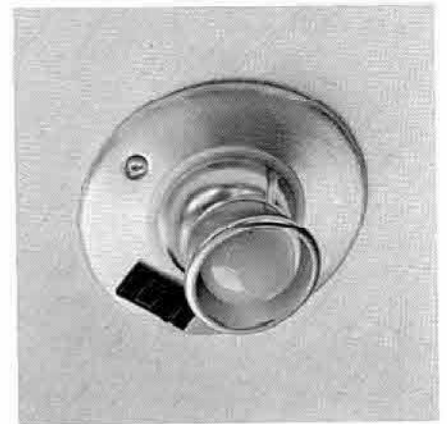
The shower/tub faucet also features a push button directly below the control knob to divert water from the bathtub spout to the shower head. To operate the shower head, turn on faucet. Water will flow through the bathtub spout until the diverter button is depressed. Hold button in until water flows through shower head. To restore water flow to the bathtub spout, simply pull out the diverter button. In addition, the diverter button will **automatically** reset to feed water to the bathtub spout when the faucet is turned off.

The telephone-style shower head can be used interchangeably as a hand-held unit or mounted on an adjustable wall bracket. When hand-held, it conserves water by allowing you to direct the spray over the entire body. First wet down, **then turn off the water by depressing the button directly under the spray nozzle.** Apply soap and lather thoroughly, **then press the button in the opposite direction to restore flow,** and rinse. The shower head can be turned off and on in this manner without affecting water temperature setting. Because it is a volume control rather than a shut-off valve, it is normal for water to trickle from the spray nozzle while the shower head button is in the "off" position.





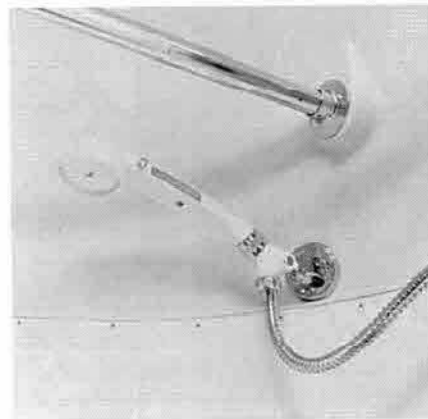
*Emergency Escape Window*



*Area Light*



*Bathroom Mirror Light Bulb Replacement*



*Telephone Shower Head and Clothes Rod*

The **diverter button** should not be confused with the **shower head button**. The former diverts water flow from bathtub spout **through shower hose to shower head**. The latter simply cuts off the diverted water **at the shower head**.

### ***Bathroom Sink***

The sink is constructed of porcelain-clad steel and can be cleaned with any non-abrasive household product. The faucet is a single-control type: Push the knob back to turn on water and pull forward to turn off water. Rotate left or right to adjust temperature.

### ***Exhaust Fan***

The bathroom exhaust fan keeps the air fresh and clean, and also removes excess heat and humidity resulting from hot water usage.

### ***Rear Bathroom Features***

The large, wall mounted medicine chest with lighted mirror is hinged at the top and can be adjusted according to the user's height. Grasp bottom edge and tilt in or out from the wall until desired position is reached. Close the medicine chest securely during travel.

The rear bathroom also features closets and cabinets for storage, and a hamper for soiled clothing. The mirrors on the closet doors may be adjusted for best view.

# Care of Interior Surfaces

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## Galley Sink

The sink is outfitted with a single-control faucet and spout. Push back on the lever to turn on water, and pull forward to turn it off. Water temperature is selected by moving the lever sideways: Left for hot, right for cold.

The stainless steel double sink will retain its original luster indefinitely with proper care. Boiling water will not harm the surface, but condiments such as salt, mustard, mayonnaise and ketchup can pit stainless steel if not cleaned up immediately. Ordinary soaps and detergents are recommended for routine cleaning and to prevent build-up of soap scale. Always rinse thoroughly and wipe dry with a soft cloth to prevent streaking or spotting.

Heavy food stains can be removed with a paste made of water and slightly abrasive cleaning powder. Always rub in the direction of the original polish marks or "grain" to avoid the formation of noticeable scratches.

An application of cleaner that leaves a thin wax coating is effective in controlling oily fingerprints. They can be removed by wiping with a soft dry cloth. The stainless steel surface should be washed and dried thoroughly before waxing.

## Counter Areas

All counter tops and splashboards are made of high pressure laminates and can be cleaned with a mild detergent or water, or with an all-purpose household cleaner. **Do not use abrasive powders, which can scratch and dull the finish.** Always use a trivet or protective pad when placing hot utensils on counter tops.

Additional counter space is provided by two laminated boards that fit snugly over each tub of the galley sink. The bottom surface of these sink covers can be used as cutting boards.

**Important:** Never use counter tops as a cutting board. Nicks and scratches can result.

## Wall Surfaces

The interior coach walls are covered with washable vinyl-clad aluminum and may be cleaned with a mild household detergent or vinyl cleaner. **Do not use abrasive powders or strong solvents; they can damage the vinyl and dull its finish.**

## Fabrics

Interior appointments such as draperies, bedspreads, mattress covers, upholstery, and wall pads are manufactured from high quality synthetic materials and should be **dry cleaned only**. Frequent vacuuming will keep them free of dust and dirt. Minor spills should be cleaned up quickly to avoid staining. The affected area should be blotted, not rubbed, to prevent the stain from working deeper into the fabric.

## Wood Surfaces

Cabinets and other woodwork will retain their luster and beauty if you treat them as you would any fine furniture. Use a good liquid or spray product.

## Carpeting

The wall-to-wall carpeting in your coach will require occasional cleaning due to heavy foot traffic. This should be done only by a professional cleaning service. The carpeting can be cleaned in place, or it can be taken up and cleaned elsewhere. Simply remove the metal strips at the doorsill, roll up the carpet and carry it out.



*Carpet Removal*



*Stainless Steel Sink*

You can keep the carpet free of ground-in dirt between major cleanings by frequent use of an electric broom or carpet sweeper. If you camp in areas where dirt is likely to be tracked into the coach, you may prefer to take out the carpet ahead of time to keep it from becoming soiled. The floor underneath is covered with vinyl and will not be harmed by foot traffic.

**Note:** Vacuum the vinyl floor before replacing carpeting.

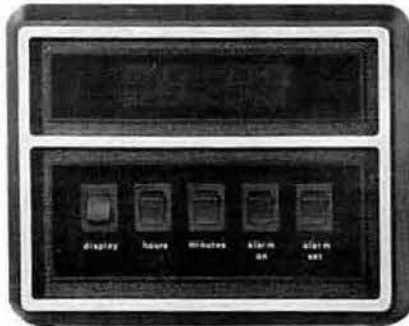
# Monitor Panel

## General Description

The monitor panel is the nerve center of your Avion trailer. It consists of an electronic digital clock with alarm, utility systems monitor, radio/tape player, ammeter, water heater ignition switch, and 12-volt systems kill switch.



Monitor panel



Clock

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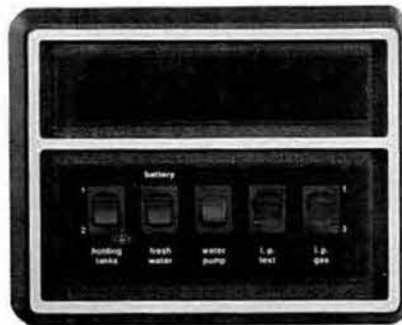
## Clock

The electronic, digital clock is a 12-hour device and uses a large, easy-to-read LED display, with AM/PM indicators, and built in alarm.

### CONTROL FUNCTIONS

1. **Display:** Turns the display ON and OFF. With the display OFF, all clock functions are normal, and the clock continues to keep time. Other than intermittent use of the alarm, the display uses the largest amount of current. Turning the display OFF except to read the time will help conserve valuable battery energy.
2. **Hours/Minutes:** These set the time. Press these switches until the correct time appears in the display. Press HOURS first, then MINUTES. Holding the switches down advances the display readout. Release the switches when the correct time is reached. If all power has been disconnected from the clock, as in a power failure, reapplication of power will produce a random display readout. Press the time set switches for the correct time. Be sure to observe the AM/PM indicators when setting the time.

3. **Alarm On:** This switch activates the clock's alarm circuits. Press this switch up to sound the alarm at the desired time.
4. **Alarm set:** Press this switch, then press the HOURS/MINUTES switches to select the alarm time. Be sure to observe the AM/PM indicators. Release the HOURS/MINUTES switches when the correct alarm time appears in the display. Release the ALARM SET switch. The display will now show the present time. To check the alarm time, press the ALARM SET switch, but don't press the HOURS/MINUTES switches unless you wish to reset the alarm.



Utility monitor

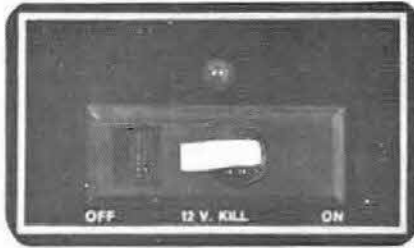
## Utility Systems Monitor

This panel monitors the level of each of the holding tanks, the level of the fresh water tank, battery condition, checks the level in each of the LP gas tanks, and turns the fresh water pump on and off. Status indicators consist of 1 row of lights labeled "E - 1/4 - 1/2 - 3/4 - F" and measure levels in the holding tanks, fresh water tank, and LP tanks.

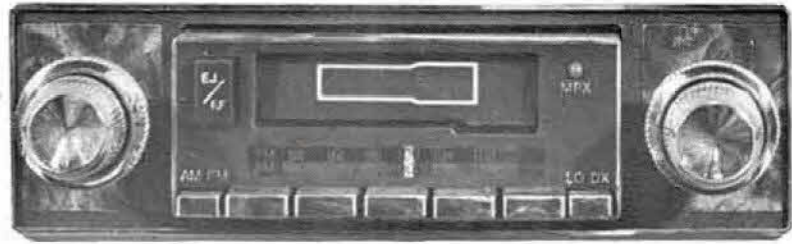
Battery condition is displayed by lights indicating "POOR - FAIR - GOOD". The word pump lights up when the water pump switch is in the "ON" position. A red LED indicator mounted between the clock and monitor panel glows when the trailer is plugged into a public utility 110-volt source. The battery is automatically charged when the 12-volt kill switch is "ON" and the trailer is plugged into 110-volt power. The systems monitor and clock are protected by a 12-volt, 20-amp fuse located on the back of the panel.

### MONITOR CONTROL FUNCTIONS

1. **Holding Tanks:** Press the switch to 1. The level in the solid waste holding tank will be displayed on the status indicators. The display is incremental. With a FULL reading, all indicators will be on. Press switch to 2. This will indicate the level in the gray or rinse water holding tank.
2. **Battery/Fresh Water:** Press the switch to BATTERY. Read the battery condition in the display. Be sure all lights, fans, etc. are turned off, and the trailer is not operating on external 110-volt power. If POOR condition is indicated, restrict battery usage to a minimum and recharge the battery as soon as possible. Press the switch to FRESH WATER. The fresh water level in the tank will be shown on the display. (See holding tanks).
3. **LP Test/LP Gas 1,2:** These switches work together to check the level of gas in the LP tanks. Press the LP test switch, then press the LP GAS 1 or LP GAS 2 switch. Read the level of each tank on the display. Gas supply can also be read on gauges installed in each tank.



12-Volt kill switch



Radio tape player

### 12-Volt Kill Switch

This switch will completely disconnect the battery from all 12-volt circuits in the trailer including the charging circuit from the converter, and all monitor panel circuits. The switch must be ON at all times while operating the trailer appliances. Operation of 12-volt appliances with the kill switch in the OFF position may damage electronic circuits in the appliances. When the trailer is not on external 110V power, a green light above the switch indicates that the kill switch is ON and the battery is in the circuit and providing power. The kill switch has a built-in 30-amp breaker that serves to prevent high-rate discharge and prolongs battery life during self-contained operation.

### AM/FM/FM Stereo Radio/Tape Player

The radio/tape player with antenna is standard equipment on your Avion. High fidelity loudspeakers are installed to provide high quality, balanced sound throughout the trailer. The bedroom speakers may be controlled by a switch located underneath the monitor panel cabinet. Power and speaker leads for the radio tape player are found behind the monitor panel. The power fuse for the radio is located in the red radio power wire. See the radio manufacturer's literature for details on operation and maintenance.



Water heater switch

### Water Heater Switch

Push this switch to ignite the water heater or turn it off. The light will glow if the heater's electronic ignition circuit fails to work when you press the switch. If this happens, push the switch to OFF, wait a few seconds, and push to ON again.



Ammeter

### Ammeter

This indicates the rate of charge or discharge of the battery. The ammeter, along with the battery condition indicator in the systems monitor display, can help you better monitor and manage your battery needs and uses. The ammeter will not work unless the 12-volt kill switch is ON.

## **Power-On Light**

This signal light confirms that the trailer's electrical system is running on 110-volt external power. It also verifies that the ACDC converter is working and that the on-board batteries are being automatically recharged.

The light is identified on the Monitor Panel as "110V Power On". If it fails to glow while on outside power, check the 3-amp fuse located at the Electrical Control Center.

## **Servicing the Monitor Panel**

To replace light bulbs or fuse, pull the spring-loaded release pin located inside the overhead cabinet immediately to the left of the Monitor Panel. The unit is hinged at the bottom and swings out and down for easy access. A cable holds the Monitor Panel in a horizontal position while it is being serviced.

When closing the Monitor Panel, raise it fully upright until it makes contact with the release pin. Push it gently on upper portion of Monitor Panel with right hand, while pulling out the release pin with left hand until it just clears the edge of the Monitor Panel and allows it to pass. Now let go of the release pin and continue to push Monitor Panel gently until the pin clicks into locked position.

## **Smoke Detector**

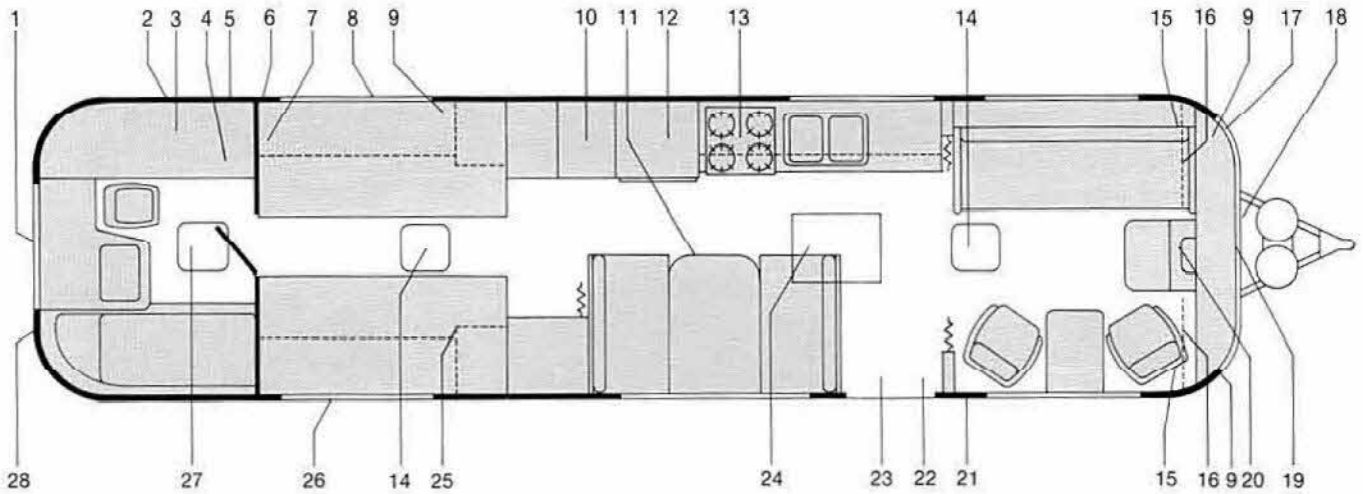
Your Avion is equipped with a battery-operated smoke detector mounted on the ceiling in the living/cooking area as specified by the Standard for Recreational Vehicles, ANSI A119.2/NFPA 501C-1982. Please read the smoke detector Owner's Manual for details on testing and caring for this important safety device.

Test the smoke detector after the trailer has been in storage, before each trip, and at least once per week during use. Depress and hold the test button on the cover for up to 20 seconds. The horn should sound a loud, pulsating alarm and the indicator light should flash quickly. This indicates that the detector is functioning properly. If the horn does not sound, check that the battery is inserted correctly and is fresh. If the battery is dead, replace it promptly, and retest the detector.

### **WARNING**

**TEST THE SMOKE DETECTOR OPERATION AFTER VEHICLE HAS BEEN IN STORAGE, BEFORE EACH TRIP, AND AT LEAST ONCE PER WEEK DURING USE. REPLACE DEAD BATTERIES PROMPTLY.**

## Model V – 10.6 Metres (34')

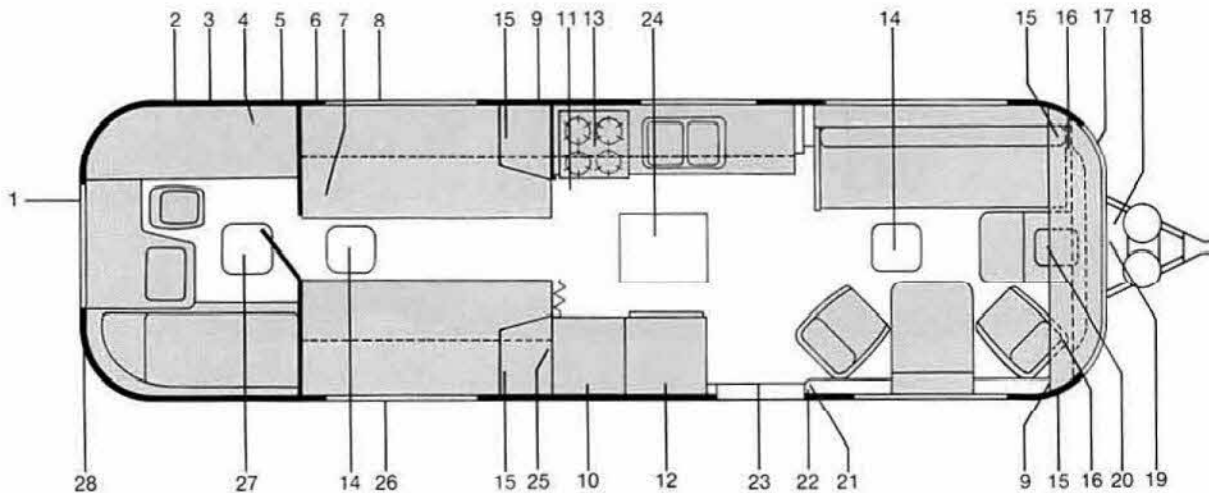


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No.	Description	Page No.
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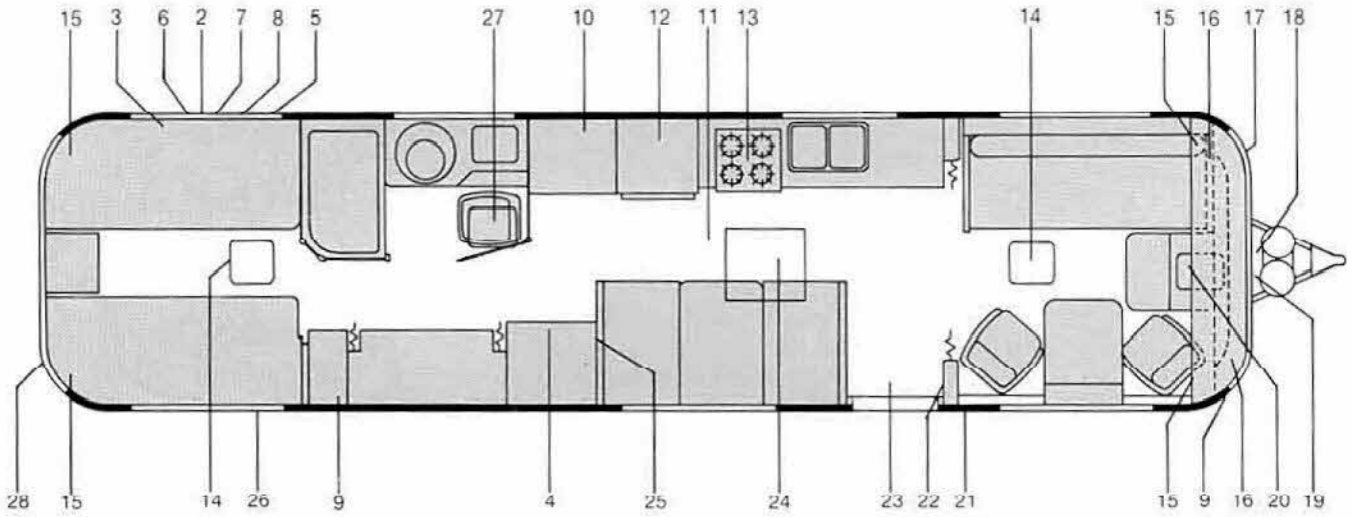
1.	Trunk	32	8.	Emergency Exit	50	19.	Hookup Convenience Light	72, 108
2.	Utility Convenience Light	74, 108	9.	TV Jack	73	20.	Monitor Panel	54
3.	Water Heater	95	10.	Furnace	92	21.	Patio Convenience Light	72, 108
4.	Electrical Control Center	72, 108	11.	TV Antenna Control (Optional)	33	22.	Switches	-
5.	110Volt Electrical Inlet	74	12.	Refrigerator	82	23.	Entry Light	50, 108
	City Water Inlet	62	13.	Microwave Oven (over range)	48	24.	Air Conditioner	
	Cable TV Hookup	33	14.	Roof Vent	48	25.	Furnace Thermostat	92
	Sewage Outlet	68	15.	Radio Speaker	55	26.	Exterior Storage	32
6.	Water Fill Spout	62	16.	Reading Light	50, 108	27.	Bathroom Exhaust Fan	51
7.	Water Pump	62	17.	Radio Antenna	34	28.	Sewer Hose Storage	68
			18.	Batteries	72			

## Model P – 9.1 Metres (30')



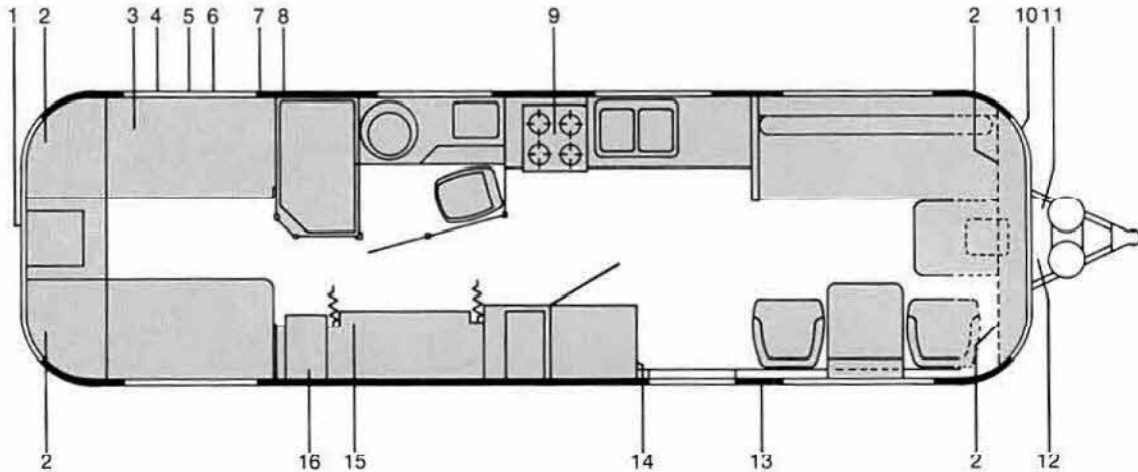
**Model W – 10.6 Metres (34')**

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|--|--|--|
| 1. Trunk _____ 32                          | 8. Emergency Exit _____ 50                 | 19. Hookup Convenience Light _____ 72, 108 |
| 2. Utility Convenience Light _____ 74, 108 | 9. TV Jack _____ 73                        | 20. Monitor Panel _____ 54                 |
| 3. Water Heater _____ 95                   | 10. Furnace _____ 92                       | 21. Patio Convenience Light _____ 72, 108  |
| 4. Electrical Control Center _____ 72, 108 | 11. TV Antenna Control (Optional) _____ 33 | 22. Switches _____ -                       |
| 5. 110Volt Electrical Inlet _____ 74       | 12. Refrigerator _____ 82                  | 23. Entry Light _____ 50, 108              |
| City Water Inlet _____ 62                  | 13. Microwave Oven (over range) _____ 48   | 24. Air Conditioner _____                  |
| Cable TV Hookup _____ 33                   | 14. Roof Vent _____ 48                     | 25. Furnace Thermostat _____ 92            |
| Sewage Outlet _____ 68                     | 15. Radio Speaker _____ 55                 | 26. Exterior Storage _____ 32              |
| 6. Water Fill Spout _____ 62               | 16. Reading Light _____ 50, 108            | 27. Bathroom Exhaust Fan _____ 51          |
| 7. Water Pump _____ 62                     | 17. Radio Antenna _____ 34                 | 28. Sewer Hose Storage _____ 68            |
|  | 18. Batteries _____ 72                     |  |

**Model R – 9.1 Metres (30')**



- |                                       |  |  |
|---------------------------------------|--|--|
| 1. Trunk _____ 32                     | 8. Drain _____                             | 13. Patio Convenience Light _____ 72,108 |
| 2. Radio Speaker _____ 55             | 9. Microwave Oven (over range) _____       | 14. Fire Extinguisher _____              |
| 3. Water Heater _____ 95              | 10. Radio Antenna _____ 34                 | 15. Converter/Breaker Box _____          |
| 4. Emergency Exit _____ 50            | 11. Batteries _____ 72                     | 16. TV Jack _____ 73                     |
| 5. Water Pump _____ 62                | 12. Hook up Convenience Light _____ 72,108 |  |
| 6. City Water Inlet _____ 62          |  |  |
| 7. 110 Volt Electrical Inlet _____ 74 |  |  |



# Systems

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LPG System 60

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Fresh Water System 62

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Drainage System 68

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Electrical System 72

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# LPG System

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**WARNING**  
**DO NOT STORE OR CARRY LP GAS**  
**CONTAINERS INSIDE YOUR TOW**  
**VEHICLE OR TRAILER**

Your Avion's gas system consists of two 40-pound capacity LPG bottles, a pipe network for distribution, and various gas-fuel appliances in the coach. The entire system is engineered specifically to operate only with **liquified petroleum gas**, commonly known as LPG.

The two most widely used types of LPG are propane and butane. While your Avion can operate efficiently on either one, we strongly recommend **propane**, because of its ability to remain in a gaseous state down to 40°F. below zero. Butane, on the other hand, will remain gaseous only to 32°F. above zero (the freezing temperature of water), making it impractical for use in cold climates.

## Gas Bottles

The two LPG cylinders are located on the trailer tongue A-frame at the front of the coach. Each is equipped with a gas flow control valve. You will find that one bottle gives approximately three weeks' service in "normal" use. Consumption will increase substantially in cold weather operation, when the furnace is running and large amounts of hot water are used. Extensive cooking can also result in higher than average LPG consumption.

Do not bring or store LP gas containers, gasoline, or other flammable liquids inside the trailer. A fire or explosion may result.

## Automatic Regulator

An automatic regulator is located at the LPG bottles. It has been calibrated at the factory to maintain a pressure of about 6.5 ounces per square inch throughout the system. All appliances have been adjusted to operate most efficiently at this pressure.

**Caution:** If any adjustment is required, it must be made by a qualified LPG service mechanic, using special equipment.

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

When the gas supply in either bottle becomes depleted, the regulator will automatically switch over the full one for uninterrupted service.

The valves on **both** bottles must be open to permit automatic changeover. A red indicator will appear on the regulator when this has occurred, and the arrow on the flip-over lever will be pointing to the empty cylinder. Moving the lever to the opposite position will change the **reserve** (full) bottle to the **service** bottle and cause the red indicator to disappear.

**Note:** If the system is under heavy load, especially in cold weather, the **service** bottle pressure may drop enough to indicate "**reserve**," even though it still contains fuel. Do not consider the service bottle exhausted until the red indicator appears under a **light** load.

The amount of fuel remaining in each tank at any given time can be verified by checking the Monitor Panel LPG system status lights or by visual inspection of the gauges on the bottles.

## Replacing the Gas Bottles

1. Shut off the gas flow control valve on the bottle being replaced.
2. Remove gas level sensor gauge wires, then disconnect the gas line by loosening the lock nut with a wrench. The nut is **left** threading; therefore, turn it **clockwise to tighten**. Tape the end of the gas line closed, even if it will be out of service for only a few minutes. Insects attracted into the tubing can often plug the line.
3. Loosen the retaining clamp nut enough to provide clearance, then remove tank. It should be moved at least 25 feet away from the trailer before being filled. Observe caution (no smoking or open flames in the area).
4. Reinstall the gas bottle by first connecting the gas line, then tighten the retaining clamp securely and turn on the flow control valve.
5. Test for gas leaks at bottle gas line connection.

## Reactivating the LPG System

Special steps must be taken to restore service in the event both cylinders have been depleted, or if your LPG system has not been used for a long period, thereby allowing air to enter the gas lines. If this happens, gas pressure must be used to force out the air before re-lighting the pilots.

1. Fill the gas bottles and reinstall if gas supply has been depleted.
2. Shut off all valves and gas appliances.
3. Open LPG bottle flow control valves.
4. Test for gas leaks at bottle gas line connection. (See next section.)
5. Starting with the appliance **nearest** the front of the coach (where the LPG tanks are located), turn on the pilot valve and hold a match to it until it ignites and holds a steady flame. Then move on to the next-closest appliance, and so on, until all pilots have been relighted.

## Testing for Gas Leaks

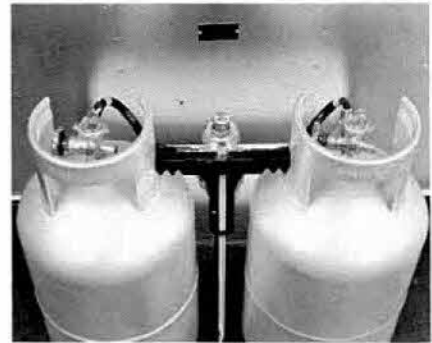
Before turning on the LPG system, make certain that appliance valves are closed, unconnected outlets are capped, and gas connections are tight. All gas fittings, except those at individual appliances, are located outside the coach for safety and serviceability. Several connections are underneath, where the main LPG line branches off to supply the separate appliances. These gas lines and fittings, as well as fittings at the appliances, should be inspected and tested periodically for possible damage and leaks.

1. Close all appliance valves and cap unconnected outlets.
2. Turn on gas supply at LPG bottle flow control valves.
3. Brush or spray a biodegradable soap solution over all fittings and any damaged areas in the gas lines. **Do not use products containing chlorine or ammonia.**
4. Look for the appearance of soap bubbles in the area being tested. If they grow larger, there is a gas leak present.

## LP Gas Safety Precautions

Be aware that the distinctive odor of LP gas indicates a leak.

1. IF YOU SMELL GAS:
  - Extinguish any open flames, pilot lights and all smoking materials.
  - Do not touch electrical switches.
  - Shut off the gas supply at the tank valve(s) or gas supply connection.
  - Open doors and other ventilating openings.
  - Leave the area until odor clears.
  - Have the gas system checked and leakage source corrected before using again.
2. Inspect the entire LP gas system for leaks or damaged parts before each trip.
3. Always be careful when drilling holes or fastening objects to the motor home so that gas lines (iron or copper) are not damaged.
4. Do not restrict access to tanks. In an emergency the tank service valve must always be easily accessible.
5. Do not place or store filled or empty LP gas containers inside your tow vehicle or trailer. LP gas containers are equipped with safety devices that relieve excessive pressure by discharging gas to the atmosphere and leaks can occur at valves and fittings.
6. Do not use any LP gas tank other than the one furnished with your motor home without being sure that all connecting components are compatible.
7. Do not fill LP gas containers to more than 80% of capacity. Overfilling can result in uncontrolled gas flow which can cause fire and explosion. A properly filled container holds about 80% of its volume as liquid.



LPG Bottles and Regulator

## Maintenance

The only maintenance you should perform personally consists of testing leaks on a regular basis and refilling the gas bottles. All other service functions must be handled by a qualified service technician to insure against potentially serious accidents.

**Caution:** Always extinguish all gas appliance pilot lights before refueling your tow vehicle.

**WARNING**  
DO NOT FILL LP GAS CONTAINERS TO MORE THAN 80% OF CAPACITY

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

# Fresh Water System

Your Avion is outfitted with a system designed to provide fresh water service from a city hookup or from the trailer's own self-contained supply. The system consists of a water pump, water heater, water purification system and pressure regulator, and all of the faucets, fixtures and plumbing required to deliver the water on demand.

## Fresh Water Holding Tank

The molded plastic 65-gallon fresh water holding tank is located below the coach floor at its axles. An air duct running from the forced air furnace to the water tank compartment provides heat for cold weather operation. Access to water tank fittings is through a cutout in the trailer floor. Water level can be checked instantly on the Monitor Panel (see page 54).

## Fill Spout

The fresh water holding tank is filled through a fill spout located behind a locking door on the outside of the coach. Simply swing down the hinged door and pull out the filler spout far enough to insert water hose. A bypass line is also provided, enabling you to fill the tank while the trailer is connected to an outside water supply. The bypass valve is located in the hose storage compartment and is accessible from outside the trailer. During the filling procedure, check the fresh water tank level at the Monitor Panel. Turn off the bypass valve when the tank is full. Any overflow will discharge through the fill spout, or through the water tank vent tube that is located in the storage compartment below.

**Caution:** For proper venting, always open the locking access door and pull out the fill spout before opening fill bypass valve.

## Water Pump

The automatic water pump is mounted on the floor near the fresh water holding tank access cutout. It has been designed specifically for use with self-contained, multi-fixture water systems, and is self-

priming for operation under any conditions. The pump will run even when dry, thereby preventing possible burn-out. A built-in discharge valve insures against back-flow into the fresh water holding tank when the system is hooked up to an outside source.

The water pump is an automatic "demand" type. It instantly begins operating when a faucet is opened. The pump automatically shuts off when the faucet is closed.

If the water system has been out of use for an extended period, prepare the system using the following procedure.

1. Check level in fresh water holding tank at Monitor Panel.
2. Clean the filter located in water line between pump and fresh water holding tank. Disassemble filter, remove the screens and clean them. Also clean all faucet aerators.
3. Open faucets on galley sink, bathroom sink and shower/tub. Each has a single control knob, which should be set midway between the maximum hot and cold settings to assure equal flow from both lines.
4. Turn on water pump switch at the Monitor Panel.
5. Close faucets when they start delivering a steady stream of water. Rotate control knob to **maximum hot setting** before turning off.
6. Check water pump to make sure it shuts itself off after the last faucet has been closed.

The water pump is now ready for automatic operation. It will start up whenever a faucet is opened and shut down when the faucet is closed.

**Important:** When traveling, always turn off the water pump at the Monitor Panel. This will eliminate the possibility of water flowing from any faucets that may have been left open inadvertently or opened during travel.

The water pump, as any other component in the Avion fresh water system, can be damaged by sub-freezing temperatures. Refer to **Winter Storage** section, page 106, for proper steps to be taken if you do not plan to travel during cold weather.

Minor malfunctions in the water pump may be corrected by using the troubleshooting guide on page 69. Never attempt to service the pump without first turning off the power at the Monitor Panel and opening all faucets to relieve pressure in the water system.

### **Water Heater**

The six-gallon-capacity gas water heater features pilotless electronic ignition. It is actuated by a switch on the Monitor Panel. A signal light on the Monitor Panel glows automatically in the event of a malfunction in the ignition system. See **Appliances** section, for operating instructions.

### **Water Purification System**

The water purification system is located in the cabinet below the galley sink and is connected to the separate galley supply faucet. It is designed to remove a variety of impurities, including suspended particulate matter and unpleasant odors and tastes, but it is not intended to eliminate bacteria. Such contamination can be treated by adding 1/6-ounce liquid chlorine bleach per 10 gallons of water to the fresh water holding tank.

The water purification system will keep water sparkling clear for cooking and drinking to the limit of the filter life. Inspect the filter cartridge periodically for accumulations of foreign matter that might impair water flow. Replace the cartridge when flow becomes noticeably restricted or once each year.

1. Shut off water by rotating the cartridge housing valve handle **clockwise** as far as it will go.
2. Rotate the colored ring all the way to the **left**. It will drop approximately  $\frac{5}{8}$ -inch.
3. Lift the cartridge slightly and turn it to the **left** until it can be disengaged.
4. Lower cartridge to disconnect it from the ring, and discard.
5. With the colored ring still in the lowered position and turned all the way to the left, align the cutout under label on ring with the lug on the new cartridge.
6. Insert new cartridge upward into ring as far as it will go.
7. While holding colored ring steady, turn cartridge to the **right** until it stops. Do not force.
8. Turn colored ring to the **right** until it drives the cartridge up into the head.
9. Lock the ring in place and turn on water by rotating purifier valve handle **clockwise**. Make certain that the handle leg engages the ring locking nut to assure correct operation.



Water Tank Fill Spout

## Water Pressure Regulator

All Avion models feature an in-line water pressure regulator. It maintains a safe and constant water pressure in the on-board fresh water system while connected to an outside water supply. Sometimes these sources are subject to wide pressure variations, which can damage plumbing or water delivery components. The water pressure regulator safeguards the trailer's water system in the event of such variations.

## Faucets

The fixtures are triple chrome plated for long-lasting beauty and ease of care. All faucets turn water on and off and adjust mixture to desired temperature. The shower/tub faucet also features a pushbutton to divert water from the bathtub spout to the shower head. See **Interior** section, page 50, for additional information on faucet operation.

## Operating the Fresh Water System

The water pump is turned on to operate your trailer's stored water system. A switch is provided on the Monitor Panel for this purpose. **The pump is not required** if you are hooking up to a city water supply.

The city water fill connection is located at the water hose storage compartment on the road side of the trailer. A short length of hose, complete with standard garden hose connector, is permanently attached to the trailer water system. The coupling should remain outside the compartment door whenever a standard garden hose is attached. A plug is provided to permit closing the end of the hose when it is not in use.

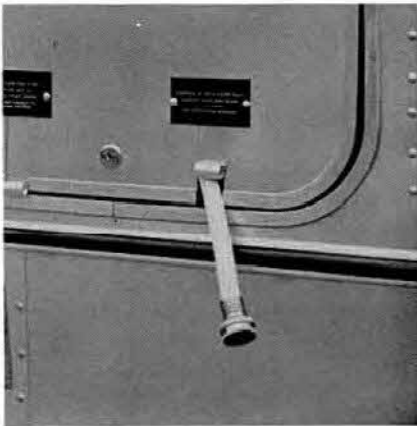
When using outside water sources for any lengthy period, you should drain the fresh water holding tank, then refill it when you disconnect the external supply and are ready to get under way. Make certain that the fill spout is closed and the access door locked before traveling.

## Water Sanitation

In addition to adding small amounts of chlorine as described under **Water Purification System**, we recommend you observe the following measures to assure complete sanitation of your potable water system . . . whether it is brand new, or has been out of service for a lengthy period, or has possibly become contaminated.

1. Turn on water pump switch at the Monitor Panel and drain the fresh water holding tank. This can be done either by opening any faucet inside the coach or by opening the holding tank drain valve, which is located under a cutout in the coach floor (see photo) on the **Road Side** at the rear, under either the bed, or dinette seat, or the optional side vanity, depending on the floor plan.

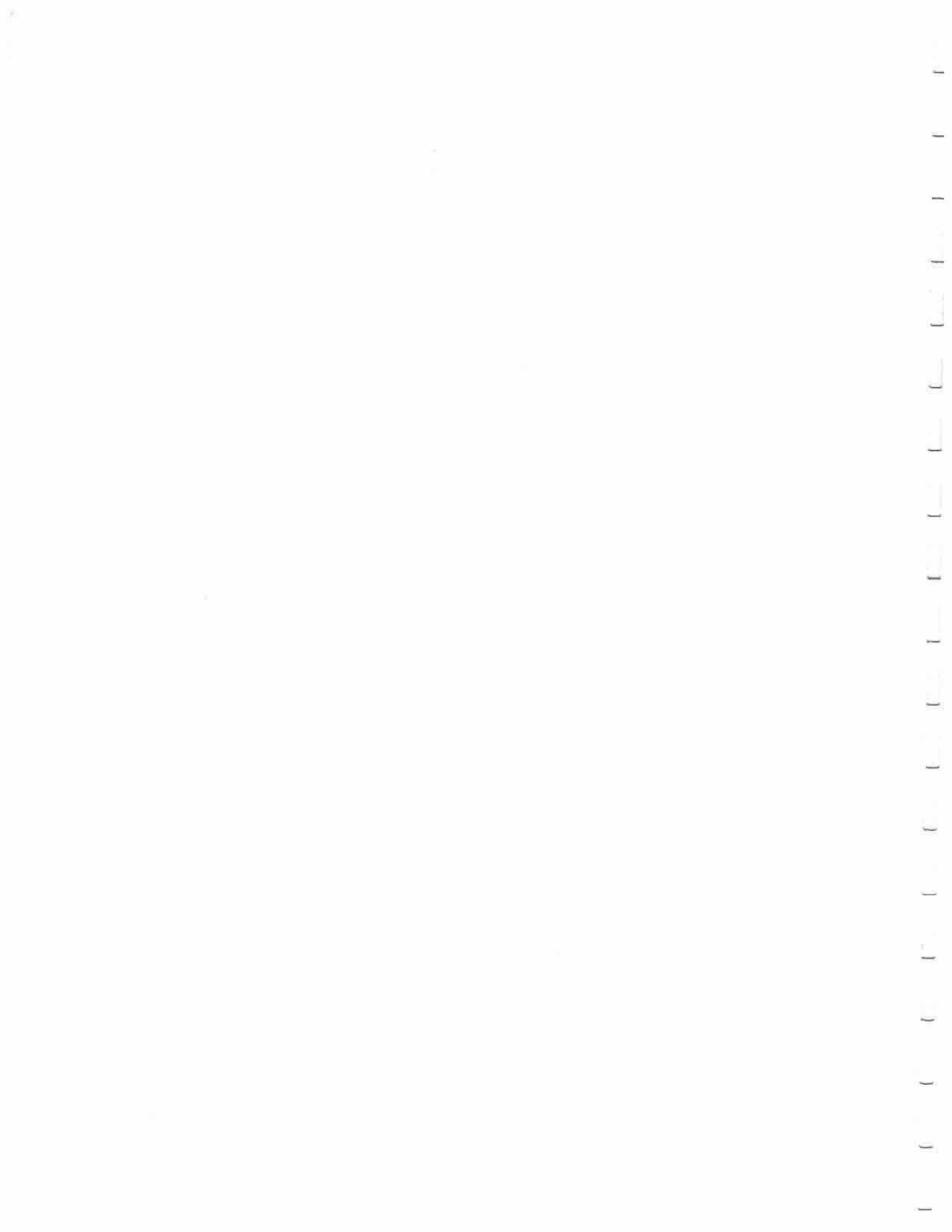
2. Prepare a solution of ¼-cup household liquid chlorine bleach (5% sodium hypochlorite) to one gallon of water for each 15 gallons of holding tank capacity.
3. Close drain valve and faucets and pour chlorine solution into the fresh water holding tank filler spout, then complete filling with plain water.
4. Open sink and tub faucets individually until water flows steadily, then turn off. This will purge any air from the lines.
5. Top off holding tank with plain water and wait three hours.
6. Drain and flush the entire system with potable water (drinking quality) by opening fresh water holding tank valve or sink and tub faucets.
7. Remove any lingering chlorine taste or odor by preparing a solution of one quart vinegar and five gallons of water and pouring it into the fresh water holding tank filler spout, after closing drain valve and faucets. The solution should be allowed to agitate in the tank for several days by the normal motion of the trailer.
8. Drain the tank again and flush with potable water, with all sink and tub faucets open, then close tank valve and faucets and refill. The system is now sanitized and ready for use.



City Water Connection

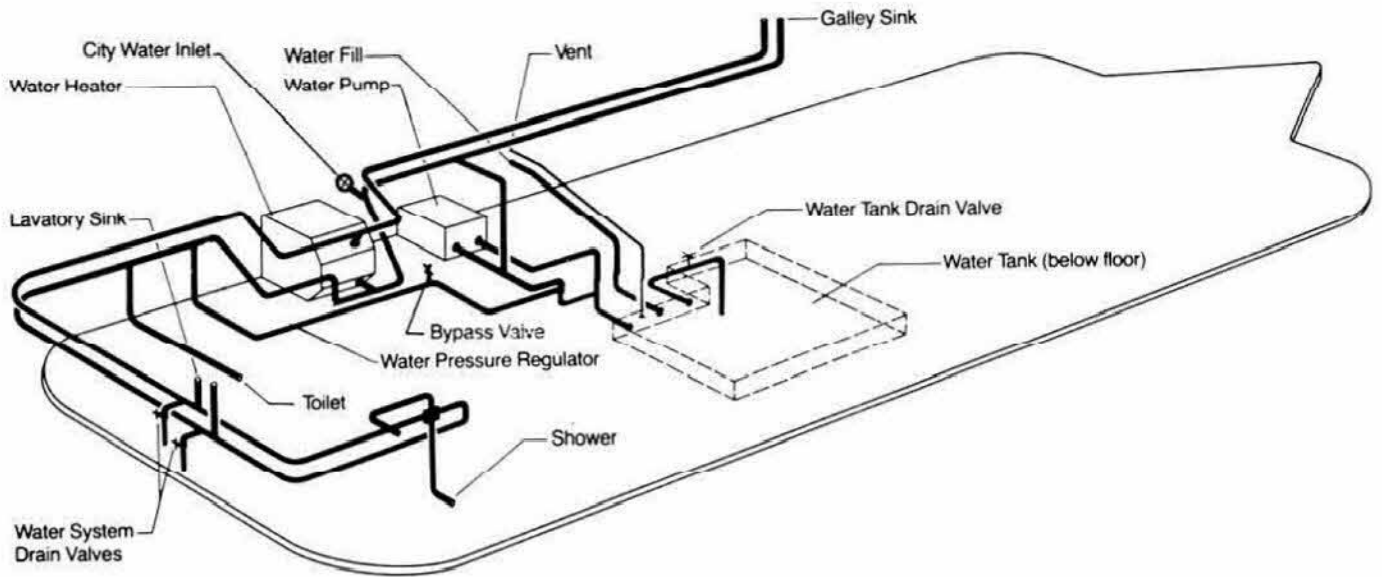
## Trouble-Shooting

Symptom	Cause	Remedy
Pump operates but no water flows through faucet.	Low level in fresh water holding tank.	Fill tank.
	Suction line clogged or kinked.	Check for obstructions.
	Air leak in suction line.	Repair or replace line.
	Loose suction line clamps or fittings.	Tighten all hose clamps and fittings.
Pump cycles on and off when faucets are closed.	Leak in plumbing.	Check for leaks and reseal.
	Defective toilet slide valve.	Replace valve.
	Internal leak in water pump.	Repair or replace pump.
	Outlet valve not sealing.	Check for proper seating and sealing.
Rough, noisy operation and excessive vibration.	Intake line restricted, kink in suction line, or fittings too small.	Check for line obstructions or restrictions and correct them. Change fittings if too small.
	Faulty pulsation dampener.	Replace dampener.
	Screws loose at pulleys or connecting rod.	Tighten screws.
Pump does not start when faucet is opened.	No electrical power to pump.	Check Monitor Panel switch and fuses.
	Outlet line clogged or kinked.	Remove obstruction.
	Defective pressure switch.	Replace switch.
Pump does not shut off when faucets are closed.	Fresh water holding tank is empty.	Fill fresh water holding tank.
	Outlet valve not sealing.	Check valve for proper seating and sealing.
	Low electrical power to pump.	Recharge batteries.
	Air in system.	Open all faucets until steady stream of water flows.
	Faulty pressure switch.	Replace switch.
	Air leak in filter.	Check filter seal and hose clamps.





# Water System Diagram



# Drainage System

The drainage system in your Avion consists of two major components: a 30-gallon-capacity rinse water holding tank, which stores water that has been used in the sinks and shower/tub; and a 40 gallon waste holding tank, which collects waste matter from the toilet.

The rinse water and solid waste holding tanks are located adjacent to each other on the road side of the coach near the back end. They discharge liquids and solid waste through a single sewage outlet, also located at the rear road side, behind a hinged door at the lower edge of the coach. This compartment also houses separate "T" handle dump valves for the rinse water and solid waste holding tanks.

## ***Hooking Up to City Sewer Inlet While Camping***

1. Remove sewer hose from the rear bumper storage compartment.
2. Unlatch sewage outlet door and let it swing down.
3. Remove the drain cap and connect hose by pressing bayonet fitting onto the sewage outlet and turning clockwise until secure.
4. Connect other end of sewer hose to the city hookup inlet.
5. Open and drain solid waste holding tank, if necessary (see next section).
6. Open rinse water holding tank dump valve by pulling straight out on the "T" handle.
7. Swivel sewage outlet down, disconnect sewer hose from outlet, then close and latch the access door.
8. Reconnect sewer hose through opening in access door.

**Important:** The solid waste holding tank dump valve should never remain open, even if you are camped where a city sewer hookup is available. The volume of water used with each flush may not be adequate to fully discharge solid wastes, resulting in an unpleasant build-up that is difficult to remove.

If however, the dump valve is left open, fill the toilet bowl with water before flushing solids, to insure adequate flow. Repeat if necessary. Depress the small toilet pedal first to fill bowl, then depress large pedal to flush.

## ***Emptying the Solid Waste Holding Tank While Camping***

1. Run 5-6 gallons of clear water into the solid waste holding tank before using, and add an appropriate amount of chemical.
2. Disconnect sewer hose from trailer sewage outlet, lower the door for access to dump valves, and reconnect the sewer hose.
3. Open solid waste holding tank dump valve by pulling out on the "T" handle. Close valve when tank has been completely drained.
4. Fill solid waste holding tank part way (5-6 gallons) and repeat draining procedure. Make sure solid waste holding tank dump valve is closed following drainage.
5. Disconnect sewer hose from sewage outlet, close and latch access door, and connect sewer hose.

## ***Overloading the Solid Waste Holding Tank***

Check the level in the solid waste holding tank often enough to prevent filling it completely. A system status light on the Monitor Panel will tell you the level on command. See **Interior** section, page 54. If this holding tank becomes too full, the toilet will not

drain. Since the toilet uses less than one pint of water for an automatic flush, the tank can easily accommodate the requirements of two adults for a period of several days. This can be extended to more than a week by using the water saver package, in the event you are camping where no sewer facilities are available.

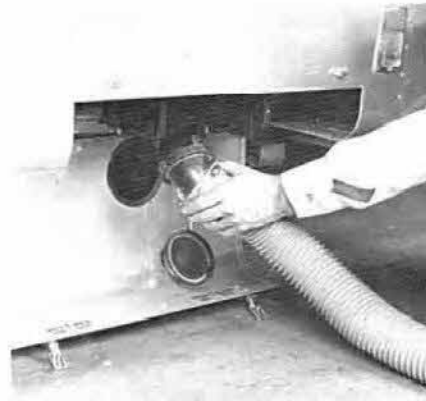
### ***Overloading the Rinse Water Holding Tank***

This tank accumulates rinse water from the galley sink, bathroom sink, and shower/tub. If your coach is connected to a city sewer inlet with the rinse water holding tank dump valve open, the tank will drain continuously and cannot overload. If you are camping where no such facilities are offered, you should store the rinse water until a sanitary dump is reached. The level in the rinse water holding tank can be observed at the Monitor Panel. See Interior section, page 54.

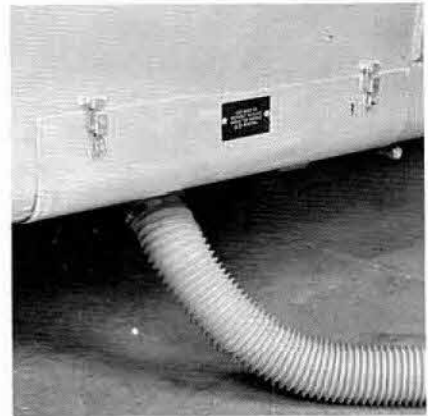
**Warning:** Holding tanks are enclosed sewer systems, and as such must be drained into an approved dump station. Both toilet and grey water holding tanks must be drained and sanitized regularly to prevent build-up of harmful or toxic materials.

### ***Shared Hookups***

You can share sewage facilities with another trailer through the use of a special "Y" fitting, available from recreational vehicle stores. The stem of the "Y" connector should be attached directly to the city inlet. Connect the sewer hose from each trailer to one of the legs of the "Y" fitting. Never empty the rinse water of solid waste holding tanks from both coaches simultaneously. If the other trailer unhooks from the "Y" fitting, remove it and reconnect your sewer hose directly to the sewer inlet.



*Sewer Hose Connection (Dumping)*



*Sewer Hose Connection (In a Park)*



*Waste Holding Tank Drain Valves*

## Disconnecting from City Sewer Hookup

Always observe the following procedure before disconnecting from a city sewer inlet in preparation for travel.

1. Empty the solid waste holding tank and close its dump valve.
2. Empty the rinse water holding tank and close its dump valve. This will help flush the sewer hose. If the rinse water holding tank dump valve had remained **open** while you were connected to a city sewer inlet, first close it, then fill tank by opening any water faucet inside the coach. The rinse water holding tank dump valve can now be opened to flush the sewer hose, then closed.

**Important:** Always drain the solid waste holding tank first; then drain the rinse water holding tank.

3. Uncouple sewer hose at the trailer sewage outlet and flush with plain water. Then disconnect other end of hose from the city sewer hookup and stow it in the rear bumper compartment.
4. Replace drain cap on the trailer sewage outlet to prevent accidental dumping, then swivel the outlet upward into its "traveling" position.

**Important:** The sewage outlet cap must be in place while traveling, but must be removed before opening the dump valve on either tank.

5. Close and latch the sewage outlet / dump valve access door.

## Dumping at a Sanitary Facility

The same basic procedures outlined earlier in this section should be followed when using a sanitary dumping facility. Remember to empty the solid waste holding tank first and the rinse water holding tank second. When you are hooking up to a sewer inlet only long enough to drain the tanks, it is not necessary to swivel the trailer sewage outlet down and run the sewer hose through the access door hole. Simply connect the sewer hose to the sewage outlet in its "traveling" position and leave the access door open while the tanks are being emptied.

### Toilet Operation

The Thetford Aqua Magic® toilet in your Avion is pedal-operated and has a sliding, self-cleaning, positive-seal blade to prevent solid waste holding tank odors from escaping into the coach. The toilet can be operated in four different ways, depending on the amount of water you desire to use.

#### Automatic Flush and Refill

1. **Depress both foot pedals** (located side by side at the right front of the toilet). This opens the slide valve and releases solid and liquid waste into the holding tank. The **small** pedal turns on the water; the **large** pedal actuates the slide valve.
2. **Keep both pedals depressed approximately one to three seconds**, until water begins to swirl in the bowl and rinses it. This time lag also fills the rim storage, which will subsequently refill the bowl and then allow it to drain.



Toilet Pedal Operation



Toilet Hand Spray

3. **Release both pedals** to close the slide valve and stop the flow of water through the hand spray hose.

4. Make sure the slide valve is seated properly. Be especially careful to flush bathroom tissue completely, otherwise it might prevent the valve from closing fully and sealing.

#### Flushing with the Hand Spray Only

1. **To flush liquid waste only**, wet the bowl with the hand spray before and after use. More water is required to rinse a dry bowl than a wet one.

2. **To flush liquid and solid waste together**, have just enough water in the bowl to allow for flotation of solid material. Depress the **large** footpedal to open the slide valve and discharge waste into holding tank. Keep the valve open while rinsing bowl with the hand spray, then release the pedal. The toilet is again ready for use.

3. To refill the bowl, depress the **small** pedal until desired water level is reached, then release it.

The Aqua Magic toilet does not require any maintenance or lubrication to provide reliable service.

#### **Drainage Tips**

1. Never attempt to dispose of facial tissues, paper towels or other materials with "wet strength" through the toilet. They do not dissolve easily and can clog the solid waste drainage system.

2. Use only water and approved chemical additives in the drainage system to avoid possible permanent damage and costly repairs.

3. Take precautions when using your trailer during cold weather. A permanent-type antifreeze may be added to the rinse water holding tank and solid waste holding tank, but never use fluids that can cause damage to the drainage system. See **Winter Storage** section, page 106, for more information.

4. Use mild household cleaners to keep the drainage system fresh and sanitary. Regular toilet bowl products can be used, but they must be flushed through the system within four hours. They should never be left in the solid waste holding tank for an extended period, because such products have an adverse effect on holding tank chemicals.

# Electrical System

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Electricity for your Avion is furnished by on-board 12-volt batteries or by 110-volt external power. Some of the 110-volt current is fed to the AC/DC power converter, which in turn supplies the trailer's 12-volt system when it is not operating from the self-contained batteries.

## *Electrical Control Center*

The heart of Avion's 110-volt and 12-volt power systems is the Electrical Control Center. It incorporates the latest solid state technology and advanced features to insure an uninterrupted source of electricity, whether you are operating from an external 110-volt hookup or the onboard 12-volt batteries.

- 1. AC/DC Power Converter.** This module converts outside 110-volt alternating current to the 12-volt power necessary for operation of interior 12-volt lights, appliances, fans, water pump and outlets when they are not drawing current from the trailer's 12-volt batteries. The converter unit's components include a low-hum power transformer to reduce current from 110-volt AC to 12-volt AC, and solid state rectifiers or diodes to change the 12-volt AC to 12-volt DC (similar to battery current).
- 2. 12-Volt DC Distribution Panel.** This module supplies current to 12-volt outlets, water pump, water heater and furnace electronic ignitions, fans, and most interior lights. It contains individual fuses to protect all 12-volt circuits leading from the power converter (see page 113 for fuse sizes). The DC panel's other components include a transfer relay that automatically switches the electrical system from battery power to converter operation when the power is plugged into a 110-volt source, and a printed circuit board.
- 3. 110-Volt AC Distribution Panel.** This module delivers electricity to the refrigerator (while operating on 110-volt current), power converter, air conditioner, and 110-volt receptacles.  
  
The panel is equipped with a 30-amp main circuit breaker and a series of branch circuit breakers. In the event of a 110-volt short or overload, a branch circuit breaker will automatically trip and cut off power. The breaker switch will be positioned halfway between "on" and "off" at this time. To reset, move breaker switch all the way to "off," then all the way back to "on." If it trips again, check exposed wiring for breaks and disconnect any appliances that might be overloading the circuits. The circuit breaker will not trip again if the problem has been corrected.

## *Battery Charger*

Whenever the trailer is connected to an external 110-volt source, the power converter will automatically bring the batteries up to full charge and then reduce to a small trickle charge to keep them in that condition.

## Automatic Power Relay

The Electrical Control Center features a transfer relay, which automatically switches the interior electrical system from battery power to outside power when you plug into a 110-volt supply. When the power cord is connected, a clicking sound will indicate that the transformer has been energized and all 12-volt systems are operating directly from the converter.

The transformer relay will automatically switch back to the battery mode when the power cord is unplugged, bypassing the power transformer. **Always operate the electrical system on 110-volts whenever possible, in order to conserve your batteries and keep them fully charged for use when no outside power is available.**

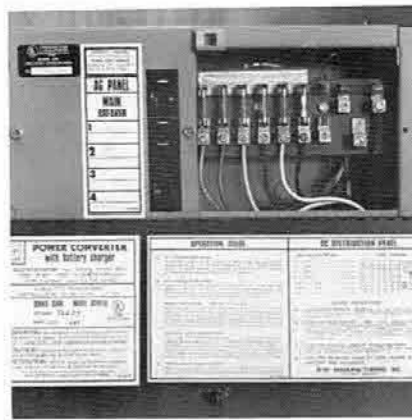
The power converter in this trailer is equipped with thermal overload protection. In the event of an overload it will automatically switch to battery power. When the converter cools it will switch to outside power. This condition can be noticed by the clicking of the converter relay. If this condition occurs, immediately turn **off** one or more lights to eliminate the cycling of the overload switch and keep the 12-volt AC system operating on outside power.

## Electrical Outlets

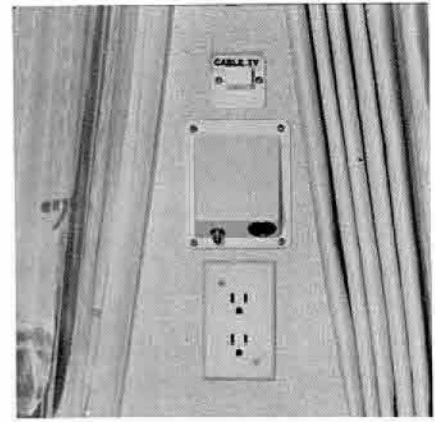
Receptacles for 110-volt use (toaster, blender or similar appliances) are located throughout the coach interior. One is also situated inside a storage compartment, near the back end of the trailer on the door side. This outlet is convenient for use with electrical rotisseries, radios, television sets and other appliances.

Receptacles for 12-volt use are also found at each television antenna jack.

**Note:** 110-volt outlets will function only when the coach is connected to outside power; 12-volt outlets will operate regardless of power source.



Electrical Control Center



110 & 12 Volt, TV & Cable TV Receptacles

## Power Cord for 110-Volt Hookup

A power cable for city hookup is stowed in the locking utility compartment on the road side of the trailer. Pull out the necessary length of cord and plug into 110-volt power source, making certain that the connection is secure. Position the cord so that its weight does not pull the plug loose.

Keep the utility compartment door closed and locked while outside power is being used. Slide the cord into the adjustable slot in the door.

**Caution:** Never attempt to plug into 220-volt power. The electrical wiring and safety devices built into your Avion coach were not designed to handle high-level voltage, which may cause extensive damage and pose a personal safety hazard.

## Exterior Lighting System

The electric brakes and all exterior lights (except patio, utility and hookup fixtures) operate on a separate 12-volt circuit from the tow car. They are also fused at the car. Dual fixtures on the back end of the coach, left and right, pair turn signal/brake lights (outboard) and tail/backup lights (inboard). Five clearance lamps are located at the top edge of the coach on the front end (amber), and five on the back end (red).

The patio light (white) is to the right of the main door and operates from an inside wall switch. The utility light (white) is located below the utility door and is operated by a switch inside the compartment. The hookup light (white) is located near the LPG bottles at the front end of the coach, and operates from a switch inside the entry door. See page 108 for bulb sizes.

## 9-Way Connector Power Cable

Power to the trailer's exterior 12-volt lights and electric brakes is provided through a 9-way connector cable from the tow car battery to the trailer hitch connector plug.

Take the following precautions to prevent battery drain.

1. Uncouple the 9-way connector cable when camping without 110-volt hookup for extended periods. This will keep the 12-volt appliances from drawing power from the tow car battery while it is operating on 12 volts.
2. Do not lay the trailer hitch connector plug in water; it will short and drain the trailer battery.

**Caution:** Two car wiring for the 9-way connector cable should be done only by a qualified installation technician to assure that adequate wire sizes are used for all circuits.

## Charging Trailer Battery from Tow Vehicle

The exterior 12-volt electrical system provides a backup method for keeping the on-board trailer battery charged between hookups to 110-volt power. The 9-way connector that supplies current from tow car to exterior coach lights and electric brakes also charges the trailer battery while the car's engine is running. The black wire of the connector (No. 4 terminal) attaches to the positive terminal of the trailer battery if the tow car has a standard "negative ground" system.

## Battery

The 12-volt electrical energy for your trailer can be provided either by the on-board storage battery or by the AC/DC power converter, when connected to a 110-volt outside supply.

The 12-volt electrical energy for your trailer can be provided either by the on-board storage battery or by the AC/DC power converter, when connected to a 110-volt outside supply. Radio and TV electronics, as well as the appliance automatic ignition circuits, require direct power from the battery at all times. These electronic circuits may be damaged if they are operated without a battery, or with the kill switch turned off (see page 55).

The battery box is designed to accept two Group 24, 85-ampere hour batteries. If two batteries are used, they should be connected in parallel to give greater reserve energy so that if one battery

should fail the other will continue furnishing power to the limits of its capacity. Check the inoperative battery with a hydrometer to verify its condition. If defective, remove it from the circuit and allow the other battery to operate alone. **Always reconnect batteries properly to avoid damage.**

The trailer battery is protected by a 40-amp in-line fuse located at the battery. If you are connected to 110-volt power and the battery does not charge, and the ammeter on the Electrical Control Center shows no charge, it indicates that the battery fuse has blown.

The battery should be checked periodically to verify that it is fully charged. In addition to observing the Monitor Panel and Electrical Control Center ammeter for condition, you should also use a hydrometer to test the individual cells. The battery is located inside a covered compartment on the trailer tongue A-frame, behind the LPG bottles. A fully charged battery will have a specific gravity reading of 1.260 to 1.280 at 80°F.

The electrolyte level should always cover the tops of the plates inside battery casings. **Permanent damage may occur if the plates are not fully submerged.** You can bring the electrolyte up to the correct level by adding filtered or distilled water. **Always check every cell when examining the battery.** Evaporation rates may vary from one to the other.

**Caution:** Exercise proper care when checking battery. It contains strong, concentrated acid, which can burn holes in clothing and cause skin irritation. If electrolyte should splash accidentally, rinse immediately and generously with an acid-neutralizing solution of baking soda or ammonia.

Inspect the wires and battery terminals for corrosion and poor connections, both of which can rob battery of power. **Again, be careful, since the corrosion is actually concentrated acid deposits.** Keep terminals clean by wiping them with a cloth saturated in a baking soda or ammonia solution. Heavy corrosion deposits can be removed from the terminals with a stiff wire brush. After cleaning, make sure all connections are snug and then apply a light coat of grease to protect them from further corrosion.