# OWNER'S MANUAL

# 2000 XL 350/355 GAS Land Yacht Series

byAirstream

#### INTRODUCTION

The Owners Manual for your new Airstream Motorhome is designed to respond to the most frequent inquiries regarding the operation, function and care of the many systems that make modern motorhoming a joy.

Airstream realizes our customers possess varying degrees of expertise in the area of repairing and maintaining the appliances in their motorhome. For this reason, the service and trouble-shooting information found in this manual is directed toward those with average mechanical skills. We also realize you may be more familiar in one area than you are in another. Only you know your capabilities and limitations.

We want you to use this manual, and hope you will find the information contained in it useful; however, should you ever feel you may be "getting in over your head" please see your dealer to have the repairs made.

All information, illustrations and specifications contained in the literature is based on the latest product information available at the time of publication approval.

Throughout this manual CAUTION and WARNING notations are used. Failure to observe "caution" can damage equipment. "Warning" notes the possibility of personal injury if not observed.

**Note**: If and when new materials and production techniques are developed which can improve the quality of its product, or material substitutions are necessary due to availability, Airstream reserves the right to make such changes.

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#### AIRSTREAM, INC.

#### LIMITED WARRANTY

#### AIRSTREAM CUTTER MOTORHOME

#### **Warranty Coverage**

When you buy a new Airstream Motorhome from an authorized Airstream dealer, Airstream, Inc., warrants the motorhome from defects in material and workmanship as follows:

#### **Basic Warranty Period**

The warranty is for 15,000 miles (20,000 Kilometers) or one year, whichever comes first, beginning when the vehicle is delivered to the first retail purchaser or first placed into demonstrator service. This warranty must have been started prior to the accumulation of 4,000 miles in order to be valid.

#### **Items Covered**

Any part of the motorhome or assembled by the factory is covered by the basic Airstream Limited Warranty except the following items, which are covered by the individual manufacturers.

#### Two-year Major Component Warranty

The following major components have two-year warranties provided by their individual manufacturers. Warranty matters will be handled by their respective service points and according to their written policies.

Slide-out room mechanism \* Generator

This two-year manufacturers' component warranty only applies to vehicles purchased from an authorized dealer, and is only valid to the first retail owner.

#### Other Individual Manufacturers' Warranties:

The following items are covered by their individual manufacturers' warranties and will be handled by their respective service points and according to their written policy.

Batteries \* Automotive chassis and power plants

Video recorder \* Backing monitor

These limited warranties do not include failure caused by accident, abuse, normal wear, overload or any cause not attributable to a defect in original material or workmanship of the motorhome or component equipment as installed by the factory.

# **Limited Structural Warranty**

For a period of 24 months or 24,000 miles, whichever comes first, from the date of purchase from an authorized dealer by the first retail purchaser, Airstream warrants the motorhome to be free from substantial structural defects in materials and workmanship.

For the purposes of clarity, "Structural" shall be limited to the structure of the sidewalls, front and back walls, roof and floor.

All other stipulations in the Basic Airstream Limited Warranty shall apply.

#### **Limitation of Implied Warranties**

All warranties of merchantability and fitness for a particular purpose, whether written or oral, express or implied, shall extend only for a period of one year from the date of original purchase, or 15,000 miles, whichever comes first. There are no other warranties which extend beyond those described on the face hereof and which expressly excludes conditions resulting from normal wear, accident, abuse, exposure or overload. Some states do not allow limitation on how long an implied warranty lasts, so the limitation may not apply to you.

#### Airstream's Responsibility

The basic Airstream Limited Warranty applies for a period of one year from the date of original purchase, or 15,000 miles, whichever comes first, and the application date of all warranties is that indicated on the owner's identification card. Defects in items covered under this warranty will be corrected without cost upon the return, at the owner's expense, of the motorhome or defective part to an authorized Airstream dealer.

#### Care and Maintenance

This warranty covers only defective material and/or workmanship; adjustments and checking are excluded. All adjustments are made at the factory prior to shipment, and rechecked by the dealer prior to delivery to the customer. Adjustments thereafter become a customer responsibility.

The owner is also responsible for following all recommendations, instructions and precautions contained in the Airstream Owner's Manual and the individual manuals furnished by the chassis, appliance and other manufacturers.

#### **Installations not Covered**

Airstream, Inc., does not accept any responsibility in connection with any of its motorhomes for additional equipment or accessories installed at any dealership or other place of business, or by any other party. Such installation of equipment or accessories by any other party will not be covered by the terms of this warranty.

#### If Repairs are Needed

If your motorhome needs repairs under the terms of the Airstream Limited Warranty, you should:

- 1. Take your motorhome to your selling dealer or other Authorized Airstream dealer.
- 2. If the dealer is incapable of making the repair, request that he contact the Service Administration Department at Airstream, Inc., for technical assistance.

- 3. If repairs are still not made, the customer should contact Airstream, Inc., 419 W. Pike Street, Jackson Center, Ohio 45334, Attention: Owner Relations Department, and furnish the following information.
  - \* The complete serial number of the motorhome
  - \* Mileage
  - \* Date of original purchase
  - \* Selling dealer
  - \* Nature of service problem and steps or service which have been performed. (The owner may be directed to another dealer at the owner's expense.)
- 4. If, after taking the above steps, repairs are still not complete, the Airstream owner may request the motorhome be allowed to be brought to the Factory Service Center at the owner's expense.

#### **Dealer Representation Excluded**

The full extent of Airstream's Limited Warranty is set forth in detail in the warranty folder, and in the Explanation of Airstream Limited Warranty covered in the Airstream Motorhome Owner's Manual. Airstream, Inc., will not be responsible for additional representations or implied warranties made by any of its dealers to the extent those representations are not a part of, or are contrary to, the terms and conditions of the Airstream Limited Warranty.

#### **Consequential and Incidental Damages**

Airstream, Inc., will not be responsible for any consequential or incidental expenses or damages resulting from a defect. Incidental expenses include, but are not limited to, travel expenses, gasoline, oil, lodging, meals, telephone tolls, loss of work and loss of use of the motorhome. Some examples of consequential damages would be: stained curtains due to rain leaks or delaminated floor caused by a plumbing leak. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

#### **Warranty Transfer**

The basic Airstream Limited Warranty is transferable to subsequent owners for the duration of the warranty period. Warranty transfer application forms are available from your dealer or Airstream, Inc., Service Administration Department.

#### **Changes in Design**

Airstream, Inc., reserves the right to make changes in design and improvements upon its product without imposing any obligation upon itself to install the same upon its products theretofore manufactured.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Thor Industries Airstream, Inc. 419 West Pike Jackson Center, Ohio 45334 (937) 596-6111

#### WARRANTY EXPLANATION

Along with your new Airstream motorhome you have purchased the Airstream Limited Warranty. Read your Limited Warranty carefully. It contains the entire agreement with respect to Airstream's obligation on the Limited Warranty on your new vehicle. The terms of the Limited Warranty, and only those terms, will define Airstream's responsibility. When you receive your Limited Warranty file it for safekeeping.

Upon proof of purchase date to any Airstream Dealer Service Center, defects in materials or workmanship will be repaired or replaced without cost to the owner for a period of twelve (12) months from the original purchase date, or 15,000 miles, whichever occurs first. Written warranties of some manufacturers of components of the motorhome will be honored by Airstream for the duration on that manufacturer's warranty.

Items such as motorhome chassis, engine, tires, batteries and generator are serviced by their respective manufacturers and will be handled by their service centers according to the terms of their written policy. Any warranty forms from these manufacturers should be completed promptly, preferably at time of purchase.

Your motorhome chassis is prechecked by its manufacturer before delivery to Airstream. All service to the chassis must be performed by the manufacturer according to the manufacturer's warranty and service policies. Literature is supplied with each Airstream motorhome which gives important information concerning its warranty coverage; however, the Airstream Limited Warranty covers the chassis heater, defrosters, windshield wiper blade, motor, washer, LP gas bottle and gas regulator.

Paint and appearance items which show imperfections should be brought to the attention of your dealer at the time of delivery and during pre-delivery inspection. Normal deterioration by use and exposure is not covered by the Airstream Limited Warranty.

Damage to enameled or porcelain surfaces resulting from abrasion, collision or impact, and broken window glass is not covered by the Airstream Limited Warranty.

### The Airstream Limited Warranty Excludes:

#### Normal Wear:

Items such as water purifier packs, curtains, upholstery, floor coverings, window, door and vent seals may show wear within the one year Limited Warranty period depending upon the amount of usage, weather and atmospheric conditions.

#### Accident

Damage caused by accident is usually visible, and we strongly urge our dealers and customers to inspect the motorhome upon delivery for any damage caused by accident while being delivered to the dealer, or while it is on the dealer's lot. Damage of this nature becomes the dealer's or your responsibility upon acceptance of the motorhome. GLASS BREAKAGE, whether obviously struck or mysterious, is always accidental and covered by most insurance policies.

#### Abuse

Lack of customer care and/or improper maintenance, including failure to comply with the terms of the Owner's Manual, or failure to heed proper vehicle operation shown by the dash instruments are not covered by warranty.

#### **Exposure**

Deterioration by sunlight is possible to such items as tires, curtains or upholstery. Steel or metal surfaces are subject to the elements, causing rust and corrosion which is normal and beyond the control and responsibility of Airstream.

#### Overload

Damage due to loading beyond capacity or to cause improper balance is not covered by the Airstream Limited Warranty. The Airstream motorhome body is engineered to properly handle any normal load. There are limits to the amount of load that can be safely transported depending upon speed and road conditions. If these limits have been exceeded the Airstream Limited Warranty will not cover resulting damage. For additional information on the load capacity of your motorhome consult your Owner's Manual or gross vehicle weight rating plate. The motorhome alignment is checked during the last quality inspection. These tolerances will only change if the motorhome is subjected to abuse, such as dropping off a sharp berm, striking a curb, or hitting a deep hole in the road. Such damage would be considered as resulting from an accident which risks are not covered under the warranty. Abnormal tire wear and/or wheel alignment resulting from such damage is not covered under the terms of the warranty.

Automotive chassis manufacturers recommend the owner have the alignment redone after the coach has made a couple of trips and a "normal load" determined. This allows the alignment to be set for your particular usage pattern.

#### **SERVICE**

The Airstream Silver Key Delivery Program is an exclusive Airstream program. Before leaving the factory each and every vital part of the motorhome is tested for performance. Each test is signed and certified by an inspector. After the motorhome arrives on your dealer's lot all of these vital parts and systems are again tested. When you take delivery of your new motorhome you will receive a complete checkout.

Please contact your dealer if you need service. Major service under your Airstream Limited Warranty is available through our nationwide network of Airstream Dealer Service Centers. An up-to-date list of Dealer Service Centers has been provided with your new motorhome. This list is current as of the date of publication.

Occasionally dealerships change, or new dealers are added who may not appear on this list. For this reason, it is suggested that you contact your local dealer from time to time and bring your list up to date. He can also provide you with additional copies if you need them.

### ALL CENTERS OPERATE ON AN APPOINTMENT BASIS FOR THE UTMOST EFFICIENCY.

When you require service from the Airstream Factory Service Center or a Certified Dealer Service Center please contact the service manager for an appointment, and kindly inform him if you are unable to keep the appointment date or wish to change it.

Service may be arranged at the Factory Service Center by contacting the Service Coordinator at:

Airstream Factory Service Center 419 W. Pike Street Jackson Center, Ohio 45334

Phone: 937-596-6111

#### REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Airstream, Inc.

If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Airstream, Inc.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 202-366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, D.C. 20590. You can also obtain other information about motor vehicle safety from the Hotline.

#### **MAINTENANCE SCHEDULE**

**Note:** See Ford and appliance manufacturer's literature for further information.

**EVERY 1000 MILES OR 30 DAYS** 

Escape Window Check operation of latches and upper hinge

Battery (lead-acid) Check water level

Smoke Alarm Test and replace battery as required

Tires Check tire pressure (65 psi)

G Fl Circuit Breaker Test and record

**EVERY 5000 MILES OR 90 DAYS** 

Exterior Door locks Lubricate with dry graphite

Exterior Hinges Lubricate with light household oil

LPG Regulator Check bottom vent for obstructions

Main Door Striker Pocket Coat with paraffin

Wheel Lug Bolts Torque to 140 ft. lbs.

Range Exhaust Hood Clean fan blades and wash filter

Roof Vent Elevator Screws Lubricate with light household oil

Main Door Step Lubricate moving parts and check

**EVERY 10,000 MILES OR 6 MONTHS** 

Exterior Clean and wax

Hitch Check bolts and welds (90 ft. lb.)

**EVERY YEAR OR 12,000 MILES** 

Battery Clean, neutralize and coat terminals with

petroleum jelly

LP Tank Have purged by LP supplier

Seams Check seal on exterior seams, windows, lights, and

vents. Reseal with Kool Seal or equivalent as needed.

# MAINTENANCE RECORDS

Date	Dealer	Service Performed		
	- A			

#### DRIVING

# WIDE BODY LIMITATIONS

Vehicles with overall body width greater than 96" are known as "wide bodies." Wide body vehicles are restricted to use on main highways in certain states. A vast majority of states allow 102" body width on all highways, but wide body width is now allowed on all federal highways in the United States. Your dealer may be able to furnish more specific information. If you are concerned about vehicle width, we invite you to consider other fine Thor vehicles offered in the standard 96" width.

#### LOADING

Below is a sample of the weight information chart provided in all Airstream vehicles. This information can be found in your vehicle on the back of the first wardrobe door on the curbside of the vehicle about 60" up from the floor or in a galley overhead roof locker.

MOTORHOME WEIGHT INFORMATION:

CONSULT OWNER'S MANUAL FOR SPECIFIC WEIGHING INSTRUCTIONS AND TOWING GUIDELINES.

MODEL		GVWR	
uvw	NCC	GCWR	
THIS MOTORHOME	IP TO	GAL.	

# OF FRESH WATER (INCLUDING WATER HEATER) FOR A TOTAL OF

LBS.

**REFERENCE:** WEIGHT OF FRESH WATER IS 8.334 LBS/GAL; WEIGHT OF LP GAS IS 4.5 LBS/GAL (AVERAGE).

GVWR GROSS VEHICLE WEIGHT RATING means the maximum permissible weight of this motorhome. The GVWR is equal to or greater than the sum of the unloaded vehicle weight

plus the net carrying capacity.

UVW UNLOADED VEHICLE WEIGHT means the weight of this motorhome as built at the factory with full fuel, engine oil, and coolants. The UVW does not include cargo, fresh water, LP gas, occupants, or dealer installed accessories.

NCC NET CARRYING CAPACITY means the maximum weight of all occupants including the driver, personal belongings, food, fresh water, LP gas, tools, tongue weight of towed vehicle, dealer installed accessories, etc., that can be carried by this motorhome, (NCC is equal to or less than GVWR minus UVW).

GCWR GROSS COMBINATION WEIGHT RATING means the value specified by the motorhome manufacturer as the maximum allowable loaded weight of this motorhome with its towed trailer or towed vehicle.

#### \*WARNING - Do not exceed the hitch capacity of 550 load and 5500 lb. tow.

The motorhomes have large fluid tanks and lots of storage areas. It gives you great flexibility in loading. With flexibility comes responsibility. If you want to load down all the storage compartments the amount of fluids will have to be reduced.

Do you really want to carry 750 pounds of water to a RV park 1,000 miles away and then hook up to a city water supply anyhow? Even if you're going to the "boondocks" you can usually fill your water tank shortly before entering the area. Just reducing your load by 10 gallons of water lets you carry an awful lot of fishing and camping gear.

#### SAFETY CHECK LIST

Your Airstream motorhome should be given a thorough safety check before a trip. Regular use of the following list will provide safe operation of your motorhome and will help you spot any malfunctioning equipment and correct the problem as soon as possible.

# FAILURE TO HEED MANY OF THE FOLLOWING ITEMS MAY CAUSE DAMAGE TO THE VEHICLE OR PERSONAL INJURY.

# **EXTERIOR CHECK LIST (BEFORE ENTERING VEHICLE)**

- 1. Check condition of tires for proper inflation.
- Turn off LPG valve on LPG tank.
- 3. Check that sewer connection, all external compartments and filler openings are properly stowed or closed and/or locked.
- 4. Check that items stored on exterior of vehicle are securely tied down.
- 5. Would any items stored on exterior of vehicle present a clearance problem?
- 6. Lower and secure awnings/TV antenna.

# INTERIOR CHECK LIST (BEFORE DRIVING OFF)

- 1. It is important that the main door be completely closed and locked during travel. This includes locking the dead bolt.
- 2. Turn off living area water pump.
- 3. Check that refrigerator door is fastened.
- 4. Check that nothing heavy is stored in overhead or high cabinets which could fall out and cause injury. Heavy items should be stored in low cabinets.
- 5. Stow folding and pedestal tables.
- 6. Check that counter tops, range top, credenza tops and shelves are clear of even small items that could become projectiles in an accident.
- 7. Do not cook while under way. Hot food or liquid could scald due to a sudden stop or accident.
- 8. Check that any internal stowage is securely held in place.
- 9. Check that lights and switches are set in positions safe for travel.
- 10. Adjust the driver's seat so that you can easily reach and operate all controls. Make sure seat is locked in position. Do not adjust driver's seat swivel or fore and aft mechanism while vehicle is moving. The seat could move unexpectedly causing loss of control.
- 11. Check that front passenger's seat is locked in position both fore and and aft adjustment and swivel mechanism.
- 12. Check rear view mirror adjustment, inside and outside. Adjust curtains if applicable for maximum visibility.
- 13. Fasten seat belts.
- 14. Check that step light goes out and that electric step has retracted.

#### SAFETY SEAT BELTS

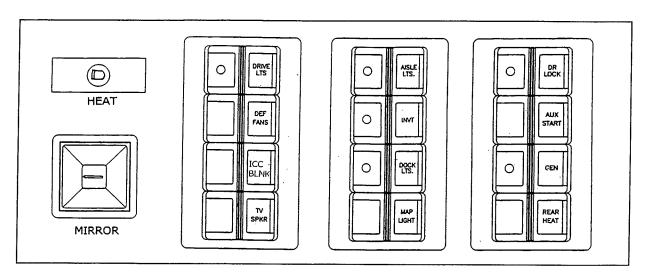
In the forward driver's area of the motorhome, safety seat belts are provided for the use of the driver and the right front passenger. Safety belts are available for other seats. It is strongly recommended that all occupants remain seated with their safety belts firmly attached while the motorhome is in motion. The driver should adjust his seat so that he is able to reach all controls easily with the belt on, especially able to use all the travel on the foot brake. The belt should be placed as low as possible around the hips to prevent sliding out from under them in case of accident. This places the load of the body on the strong hip bone structure instead of around the soft abdominal area. Two people should never try to use the same seat belt.

WARNING: Children must be secured in a Federally Approved Child Restraint Device. Failure to use proper restraints can result in severe or fatal injuries in case of accidents.

Child restraint devices are designed to be secured with lap or lap/shoulder belts. All instructions supplied by the restraint manufacturer must be followed. Statistics have shown children are safer when properly restrained in a rear seating position than in a front seating position.

Often the children traveling in motorhomes are grandchildren. There are times when our love for grandchildren makes us hesitate to properly supervise their actions. Don't hesitate when it comes to their safety. Make sure they are properly restrained.

CHILDREN HAVE LOVED ONES TOO...IF YOU WON'T BUCKLE UP FOR YOURSELF, BUCKLE UP FOR THEM.



NOTE: Switches will vary according to options on vehicle.

#### AIRSTREAM DASH CONTROLS

Most automotive gauges and controls are standard instruments provided by the chassis manufacturer. Their function and use is described in your Drivers Manual. The exception on automotive controls is the heater/air conditioner. Operating instructions on these components can be found in the chassis section of this manual.

#### **ARM REST SWITCHES:**

- **Door Lock** The main door can be locked or unlocked from the drivers seat. Remember to hide an extra door key on the exterior in case of unexpected battery failure.
- Auxiliary Start The auxiliary start switch is intended to be used if the engine battery becomes too discharged to turn the engine over. To operate, hold the switch in the start position, then use the ignition switch in a normal fashion. Operating the auxiliary start switch closes the points on a large solenoid, tying all three vehicle batteries together for increased starting power.
- Generator Switch The remote generator switch on the dash allows the driver to start or stop the generator without leaving the driver's seat. It should be noted a built-in time delay allows the generator to reach full operating speed before 120 volt current is provided to the coach.
- Rear Heat This switch is two speed and controls the fan on the rear engine heater by the door. The heat source is from the radiator so heat will only be available when driving.
- Aisle Lights The low aisle lights will allow passengers to converse without using overhead lights that could be bothersome to a driver at night.
- Inverter (optional) This switch controls a relatively small inverter wired into the televisions and video cassette recorder. Turn this switch on when you want to use the televisions and you're not plugged into a 110 volt power source.
- **Docking Lights RS** The docking lights illuminate the area at the side of the motorhome and are intended for use when parking in a campground at night.
- Driving Lights To operate the driving lights the regular head lights must be turned on first.
- **Defrost Fans** In cool, damp weather these fans really help to clear the large windshields. This switch turns them on and off and each fan has it's own switch to operate the oscillating feature.
- ICC Blink With this switch it is possible to blink the clearance lights on the motorhome. It's
  most commonly used as a way of indicating your thanks for a courtesty shown to you by
  another driver,
- TV Speaker This switches the audio output of the television to the front four speakers of the radio system.
- Mirror Move center switch to R or L. The four perimeter switches will then move the right or left mirror in the direction indicated. The paddle type switch marked heat is for defrosting the mirrors. (Hopefully you won't need this unless you're a skier).

#### POWER SEAT CONTROLS

Besides the normal power seat switch there are two additional finger levers. One allows the seat to recline and the other will allow the seat to rotate.

WARNING: Never adjust drivers seat while vehicle is in motion.

CAUTION: Revolving the power seat completely around will pull the wiring apart. The seats should only be swiveled toward the center of the vehicle. If the wires are loosened they can be reconnected by following the color code: Red to red, green to green, etc. On some models the wires will be on a plug that can be reattached.

#### TRAILER TOWING AND DRIVING TIPS

Since this vehicle is designed and intended to be used primarily as a load carrying vehicle, towing a trailer will affect handling, durability and economy. Maximum safety and satisfaction depends upon proper use of correct equipment and avoiding overloads and other abusive operation.

#### **CAUTION:**

The maximum loaded trailer weight which you can pull with your vehicle is 4,000 lbs. Vehicles should be properly equipped for towing trailers. Information on trailer hauling capabilities and special equipment required may be obtained from your Airstream dealer.

To assist in attaining good handling of the vehicle/trailer combination it is important that the trailer tongue load be maintained at approximately 10% of the loaded trailer weight, but not to exceed 550 lbs. Tongue loads can be adjusted by proper distribution of the load in the trailer, and can be checked by weighing separately the loaded trailer and then the tongue.

When towing trailers, tires should be inflated to the highest pressures shown on the information plate attached to the drivers door jamb or dash of your motorhome. The allowable passenger and cargo load (GVW) of this vehicle is reduced by an amount equal to the trailer tongue load on the trailer hitch.

Trailer brakes are required on axles of trailers over 1,000 lbs. loaded weight.

#### **CAUTION:**

If your Ford chassis requires towing please refer to their manual for directions.

# **NOTES**

#### CHASSIS

Your Airstream motorhome is built on a Ford chassis. Operation of the engine and other related components is discussed in the Owners and Drivers Manual supplied with each coach.

If repairs are needed it can be difficult to determine which parts of the chassis are warranted by Ford, and which are Airstream's responsibility. The following list shows the major components of the chassis and the company responsible for their servicing.

#### FORD CLASS A MOTORHOME CHASSIS

Engine
Transmission
Brakes
Steering Assembly
Front Spindle, Bearings
Alternator
Turn Signals

Drive Axle and Hubs

Air Conditioner Compressor Air Conditioner Condenser Shocks Automotive Fuse Panels Parking Brake Fuel Tank Cruise Control Wheels

#### **AIRSTREAM**

Auxiliary Heater
Dash Air Conditioner/Heater

Windshield Wipers Isolator

The above list covers almost all of the chassis components. If you need further clarification or information your dealer should be contacted with the details.

#### TIRE SUPPORT

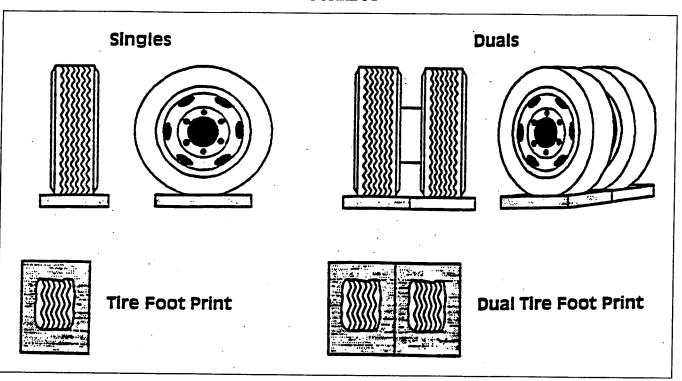
Since motorhomes may sit for long periods of time it is important to properly support the tires if blocks are used for leveling.

The following information is provided by the Michelin Technical Group.

Extreme caution must be taken to ensure that the tires are fully supported when using blocks to level motorhomes and/or RV's. The load on the tire should be evenly distributed on the block and in the case of duals, evenly distributed on blocks for both tires. If not properly done, the steel cables in the sidewall of the tires may be damaged and could lead to premature fatigue of the sidewall.

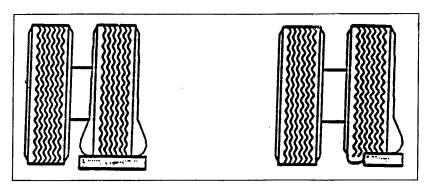
The **CORRECT** methods are shown in Figure 1. Please note that the blocks are wider than the tread and longer than the tire's footprint. This provides maximum support to the tires and assures that the load is evenly distributed throughout the tire's footprint area.

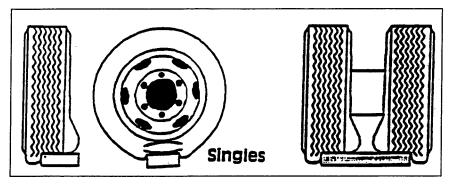
# FIGURE 1 CORRECT



#### **INCORRECT**

One tire or a portion of one tire is supporting the full load.





Portion of the two tires supporting the full load.

Tires incorrectly supported, as shown above, may be damaged which could lead to casing failure resulting in serious injury or property damage. If, on previous occasions, the tires have been incorrectly supported, a hidden damage may be present. Please contact your local Michelin dealer and request an inspection and a determination of possible damage.

# DASH AIR CONDITIONER/HEATER

Acme Radiator Air Conditioning, Inc. 17103 St. Rd. 4E Goshen, Indiana 46526 800-552-2263

#### **OPERATION**

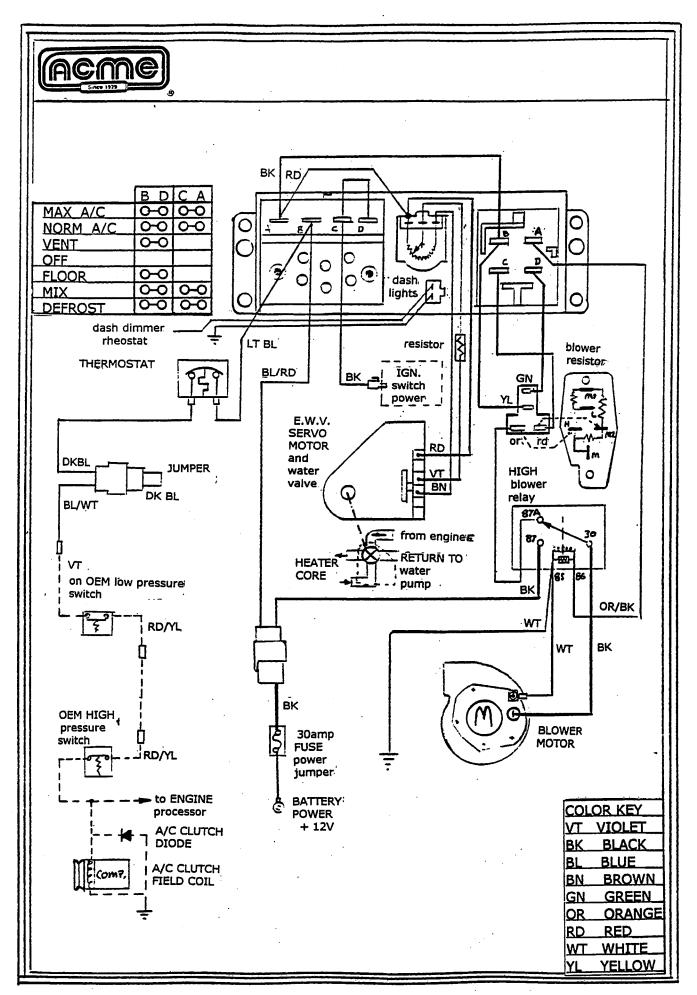
The dash heater control is very similar to many automobiles.

The center rotary switch marked "cold-hot" controls the amount of hot water flowing through the heater core. When the maximum air conditioner is engaged, inside air is circulated through the evaporator to obtain the utmost in cooling. The two positions marked vent and norm draw outside air through the evaporator.

#### SERVICE

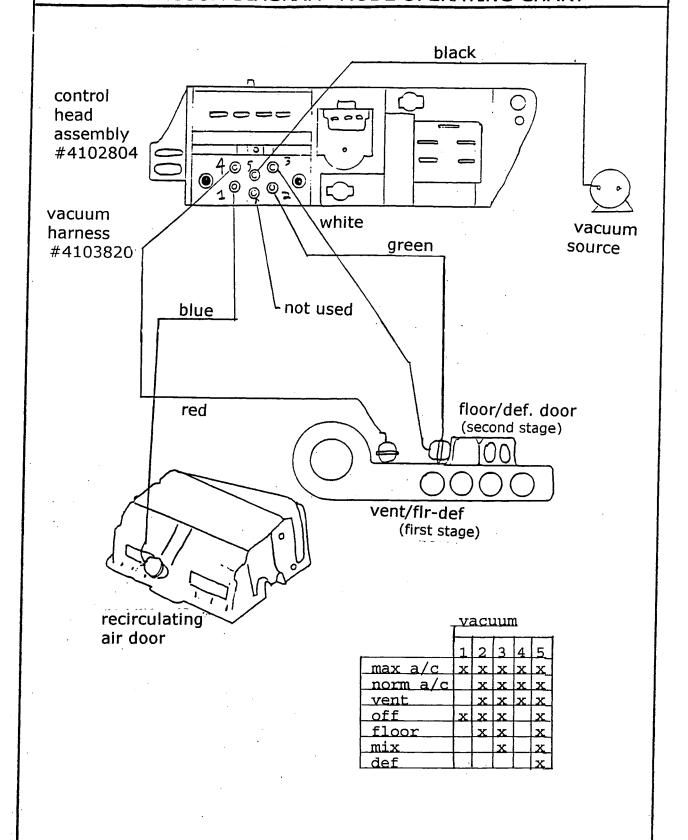
Acme has requested you to call them on the 800 number listed above should you experience any service problems. They are usually able to help get any repairs needed at an air conditioner repair facility close to your location.

The following pages include wiring diagrams and vacuum line diagrams.



#### **VACUUM SCHEMATIC**

# ACME ROTARY CONTROL HEAD W/ELECTRIC WATER VALVE VACUUM DIAGRAM--MODE OPERATING CHART



C-6

5/5/98 SAM

#### ELECTRIC STEP

Manufacturer:

Kwikee Products Company Division of Ashton Corporation

P.O. Box 638

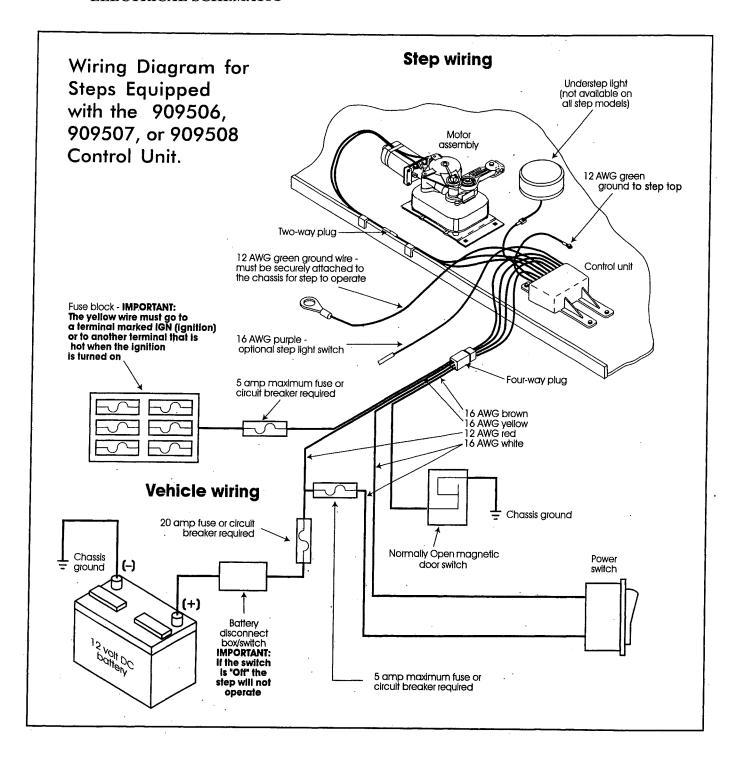
Drain, Oregon 97435 Phone: 503-836-2126

The step is easy and convenient to operate. Just inside the main door is a wall switch for the step. When traveling leave the switch in the "ON" position - the step will lower when the door is opened and retract when the door is closed.

When parked, open the door so the step is lowered, Then shut the switch off. The step will remain in the lowered position and the "step" light on the dash will be extinguished. If left on it will run your engine battery down in about a week.

If you forget and leave the switch off as you leave - No Problem! When the ignition is "ON" the wall switch is by-passed and the step will retract when the door is closed.

WARNING: If the wall switch is turned off, and the step is in the retracted position when the ignition is turned off, the step will not lower when the door is opened. Keep your passengers informed.



#### **OPERATING THE STEP**

- 1. After the installation is complete and with the entrance door open, turn the power switch on.
- 2. Close the door. The step should retract and lock in the "up" position.
- 3. Open the door. The step should extend and lock in the "down" position with the understep light on. **NOTE:** The under step light is not available on all step models.
- 4. Turn the power switch off. The step should remain in the extended position with the understep light off when the door is closed. Turning off the power with the step retracted will hold the step in a retracted position as well.
- 5. With the power switch off., the step extended, and the entrance door closed, turn on the vehicle ignition. The ignition override system will go into effect and the step will automatically retract. NOTE If the yellow wire from the four-way connector was not connected to an ignition power source during the installation procedure, the ignition safety system will be inoperative and the step will remain in the extended position. In this case, the power switch must be turned on for the step to retract.

<u>WARNING</u>: If the vehicle is driven with the step in the extended position, there is the possibility of causing major damage to both the step and the vehicle.

- 6. Turn the vehicle ignition off and open the door. The step will extend and lock in the "down" position. This is the "Last Out" feature.
  - <u>WARNING</u>: If the door is opened and closed without allowing the step to fully extend and lock in the "down" position, the step will retract and lock in the "up" position. When the door is reopened, the step will not extend. The power switch must be turned on for the step to extend.
- 7. The "Last Out" feature is only operative the first time the door is opened after the vehicle ignition is turned off. NOTE: If the yellow wire from the four-way connector was not connected to the vehicle fuse block during installation, the "Last Out" feature will not operate.

When the vehicle ignition is on, the step will always activate with the door movement, regardless of power switch position. **NOTE:** This is not valid if the aforementioned yellow wire has not been connected.

Be Safe - Look Before You Leap!

#### **General Service Notes**

If the power wire to the step is disconnected from its source and reconnected, a spark is common. This is caused by the momentary charging of the control unit and does not necessarily indicate the system is staying on, which would cause a drain on the battery. If battery drain is suspected, observe the understep light (if so equipped) while the step is extending. The power switch must be on for the understep light to operate. When the step locks into the down position, the understep light should become noticeably brighter. If it does not, the control may not be shutting off. Turn the power switch off and unplug the four way plug between the control unit and the vehicle to prevent overheating the step motor.

To further determine that the control is not shutting off, remove the 2 screws from the connector on the step motor leads between the step motor and the control unit. Remove the seal assembly. (See Figure 6 in the Step Test Procedure). Place a voltmeter between the red and yellow motor leads than reconnect the four-way plug. Turn the power switch on. If any voltage registers on the meter, the control is not shutting off and may be defective. When doing this test, switch the voltmeter leads back and forth between the red and yellow motor leads to be sure no voltage registers. If any voltage does register, disconnect the four-way plug to keep the motor from overheating. If zero voltage is present, the control has shut off and is normal.

If the step does not work or operates erratically, such as extending part way and shutting off, the first item that should be checked is the vehicle's battery. The voltage supplied to the step should be at least 12.7 volts DC for well-charged batteries. A battery that registers below 12.7 volts DC may drop as low as 8 volts DC when a load is drawn, such as engaging the step motor. The control unit will shut off if the loaded voltage falls below 9.5 volts DC. The control unit will remember which function it was performing. It will wait between two and five seconds (time depends upon temperature) and will try again to complete the original function. If the supply voltage is still below 9.5 volts DC, the control will go into another delay state. If the supply voltage remains above 9.5 volts DC, the original function will be completed. Should the supply voltage again fall below 9.5 volts DC the system will go into another delay state. It could take a couple of minutes to complete the original function. Low supply voltage may cause erratic operation of the step. Poor ground connections may also cause erratic operation of the step.

The step may also operate erratically if the step is being operated directly from a converter, and the output from the converter is not adequate or properly filtered for clean DC voltage. The converter must be capable of producing a minimum of 30 amps for proper step operation.

If the control unit is hooked up reverse polarity, the step will not operate. If the ground to the control unit is lost, either between the step control unit and the vehicle chassis (the long 10 ga. green ground wire) or between the vehicle battery and the ground (negative battery cable) the step will not function. Make sure the battery terminals and all wire connections are clean and tight. Be sure all wires are of proper gauges or heavier as specified in the wiring diagram.

These general service notes and the Step Test Procedure cover the most common problems associated with Kwikee electric steps. Due to the number of variable conditions available, you may experience symptoms other than those covered. Please feel free to contact the Customer Service Department at 1 (800) 736-9961 for further information or assistance.

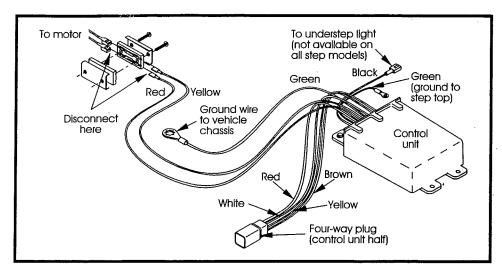


Figure 6

#### STEP TEST PROCEDURE

This Step Test Procedure has been provided as the easiest and quickest way to troubleshoot and test all of the Kwikee automatic electric step functions. It is designed to initially check the step basic functions separately from the RV wiring, there by determining whether or not the step is malfunctioning. From that initial determination, the procedure goes on to test the various components of the step until the source of the malfunction is located. Using this procedure will shorten and reduce the time spent troubleshooting.

Some portions of this test require additional equipment. This equipment includes: a voltmeter, a well charged 12 volt DC automotive battery, and a 4-way extended-wire pigtail (Part #909336, available from Kwikee Products Company).

WARNING: 12 volt automotive batteries contain sulfuric acid which can cause severe burns. Avoid contact with the skin, eyes and clothing. 12 volt automotive batteries produce hydrogen gas which is explosive; keep cigarettes, open flames and sparks away from the battery at all times.

Reading this entire procedure prior to beginning the tests is recommended. Should you need assistance in the course of performing this test procedure, fool free to contact Kwikee's toll free Service Line at 1 (800) 736-9961.

#### **Testing the Step**

NOTE: Prior to beginning the test procedure, check to be sure that all ground connections are securely fastened with good metal-t0-metal contact. A good ground is required for proper step operation.

- 1. Inspect the step for visible damage that might restrict the step's extension.
- 2. Obtain a 4-way pigtail connector (part #909336) from Kwikee.
- 3. Disconnect the 4-way plug on the underside of the step and connect the step-half of the plug with the extended-wire pigtail connector (see Wiring Schematic).
- 4. Set a fully charged 12 volt DC automotive battery beside the step. ATTENTION: Do not allow battery terminals to come in contact with the step. Complete a ground for the step tests by connection a 10 gauge wire from the negative (-) post of the battery to the 10 gauge green ground wire from the control unit.
- 5. For the power supply, attach the red wire from the extended-wire pigtail to the battery's positive (+) post.

6. With the power and ground connections complete, all functions of the control unit can be checked at the leads to the 4-way extended-wire pigtail. The brown wire is the door switch, the white wire is the power switch, and the yellow wire is the ignition override.

WARNING: Keep all fingers, arms and legs clear of the step mechanism while performing these tests.

- 7. While holding the white wire to the battery's positive (+) post, tough the brown wire to the battery's negative (-) post. The step should extend. Remove the brown wire and the step should retract.
- 8. As in Step 7, extend the step again. With the step extended, disconnect the white wire first and then disconnect the brown wire. The step should remain extended.
- 9. With the step still extended, touch the yellow wire to the battery's positive (+) post. The step should retract.
- 10. At this point, refer to the control unit. On step models with the numbers #909514, #909515 or #909591, all step functions have been tested. Proceed to step 11. On step models with the numbers #909513, #909516, #909590 or #909592, test the "Last Out" feature by disconnecting the yellow wire and then touching the brown wire to the battery's negative (-) post. The step should extend and remain extended.
- 11. If any of the step functions do not work, the source of the malfunction is either in the control unit and/or the motor. Proceed to the testing the motor section. If all of the step functions do work, the malfunction is either in the door switch, the power switch or the vehicle wiring. Proceed to testing the 4-way plug vehicle half section.

#### **Testing the Motor**

12. Steps equipped with the permanent magnet motor require disconnecting the motor leads from the control unit before applying power to the motor leads (see Figure 6). To disconnect the motor leads, disassemble the motor lead wire connector seal.

NOTE: Failure to disconnect the motor wire leads from the control unit prior to applying power to the motor leads will damage the control unit and void warranty.

NOTE: Do not cut any motor or control unit wire leads. Any leads that have been cut will void the warranty.

After the motor leads have been disconnected, connecting the motor's red wire lead to the positive (+)post of the battery and the motor's yellow wire lead to the negative (-) post of the battery will extend the step. Reversing the lead connections will retract the step. If the step extends and retracts during this test, the condition of the strep motor is good.

#### Testing the 4-way Plug - Vehicle Half

13. To check the main power source, connect the voltmeter between the red wire from the four-way plug (vehicle half) and the ground terminal at the end of the control unit's 10 gauge green ground wire (See Figure 7). The reading should be a minimum of 12 volts DC.

If the voltage reading is low, there may be a loose or corroded connection at the battery, or a low level on the battery itself. If the voltage reading is zero (0) volts, check the 25 amp fuse/circuit breaker, all connections, and the condition of the wiring between the battery and the plug.

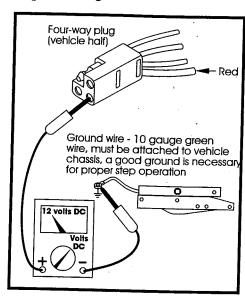


Figure 7

14. To check the power switch, connect the voltmeter between the white wire from the the four-way plug (vehicle half) and the terminal at the end of the control unit's 10 gauge green ground wire (see Figure 8). The reading should be a minimum of 12 volts DC (the same as in Step 13) when the switch is on, and zero (0) volts when the switch is off.

If the voltmeter reads zero (0) volts when the power switch is on, there is a problem in the power switch circuit.

Check the 5 amp in-line fuse, the Power Switch itself and the condition of the circuit's wiring and terminal connections.

15. To check the door switch, connect the voltmeter between the red wire from the four-way plug (vehicle half) and the brown wire in the same plug (see Figure 9). The voltage should be about 12 volts DC (the same as in step 13) when the door is open and zero (0) when the door is closed.

If the readings vary (either zero (0) volts when the door is opened or 12 volts continuously) there is a problem in the door switch. Check the door switch itself and the condition of the circuit's wiring and terminal connections.

16. To check the ignition override system, connect the voltmeter between the yellow wire from the four-way plug (vehicle half)and the ground terminal on the end of the control unit's 10 gauge green ground wire (see Figure 10). The voltage reading should be approximately 12 volts DC when the ignition is on and zero (0) volts when the ignition is off.

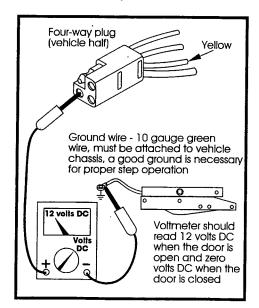


Figure 10

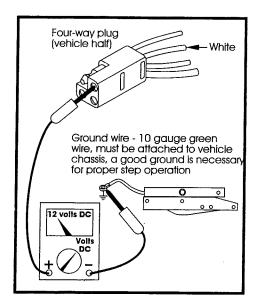


Figure 8

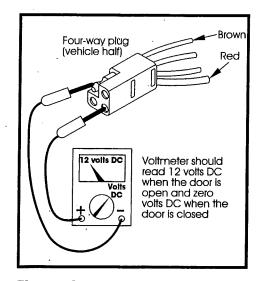


Figure 9

If the reading is zero when the ignition is on, check the terminal connections in the vehicle's fuse/circuit breaker and the condition of the circuit's wiring and terminal connections. NOTE - The step wiring circuit must be independent. No other device (i.e. alarm systems, step well lights, etc.) can be connected to the step wiring circuit. Any device connected to the steps wiring can cause the step to malfunction and will void the warranty.

This concludes the Step Test Procedure. At this point, the source of a step's malfunction should be known. If you have additional questions or need more assistance, contact Kwikee's Service Representative at 1 (800) 736-9961.

#### STEP MOTOR ASSEMBLY DIAGRAM

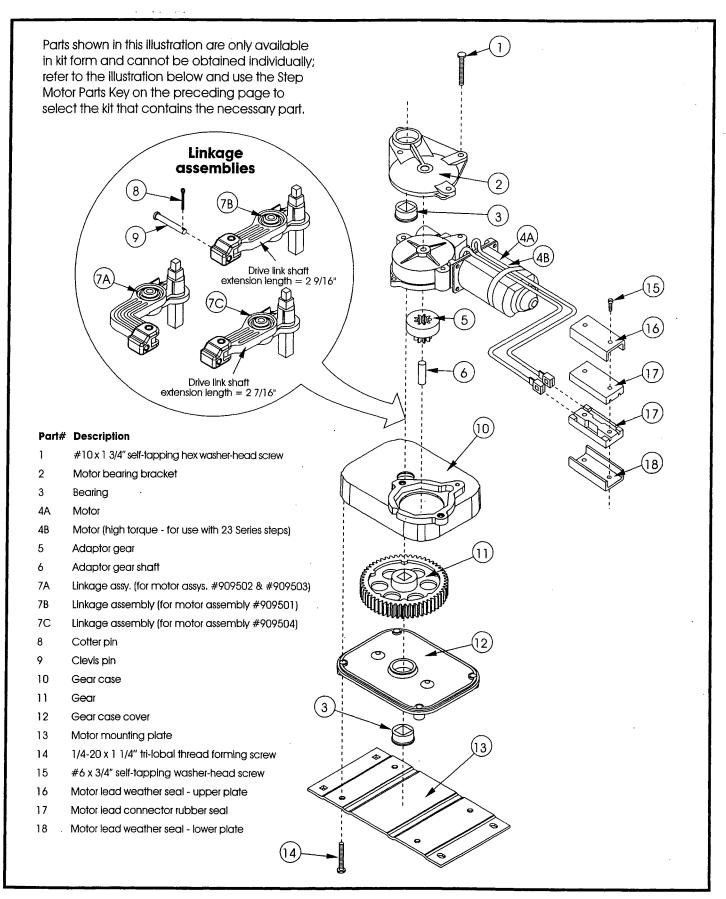
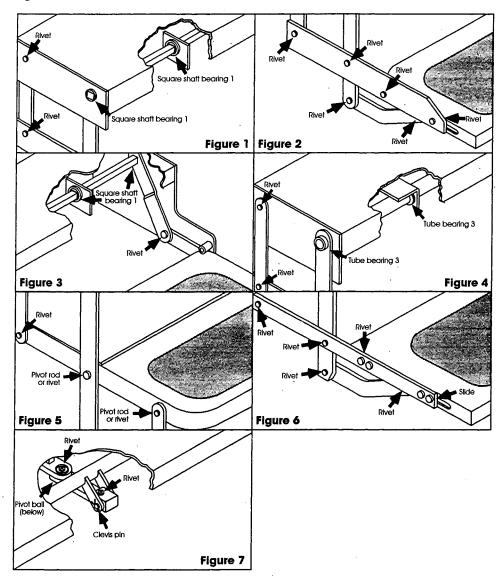


Figure 11

#### LUBRICATION AND MAINTENANCE SCHEDULE

Clean all mud, salt, and road grime from step before lubricating. Lubricate all moving parts (bearings, pivot points, slides, clevis pin, and drive linkage ball) every 30 days with a good quality moisture and heat resistant penetrating grease. Kwik-Lube Spray Grease is specially formulated to lubricate Kwikee electric steps and is recommended for lubricating all moving parts.

Refer to figures below for lubrication locations:



**NOTE:** Figures are to be used as a general reference only. Some may not pertain to your particular step model. Views are typical to both ends of the steps.

- 1. Figures 1 & 3 square shaft bearing lubricate around outside and under head of bearing.
- 2. Figure 4 on step models equipped with plastic cover, this cover will have to be removed to lubricate center bearings. Lubricate bearings under cover every 90 days.
- 3. Figure 4 1" O.D. tube bearing lubricate around drive tube and between head of bearing and drive leg.

NOTE: We recommend that penetrating oils and silicone lubricants not be used on the step as they do not last.

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#### **CAMPING**

#### **SAFETY**

As always, safety should be one of your top priorities. Make sure you, and everyone traveling with you, can operate the main door and exit window rapidly without light.

WARNING: The escape window (which is the rear, roadside windows) is opened by rotating

the red latch handle down then pushing the sash out. The pleated shade is opened by sliding it straight up. The window operation should be checked each trip.

WARNING: At each campsite make sure you have not parked in such a manner as to block

the operation of the escape window by being too close to trees, fences or other impediments. Scenic views are one reason for traveling, but don't park so the

beautiful lake or steep cliff is just outside your escape window.

WARNING: Read the directions carefully on the fire extinguisher. If there is any doubt on

the operation, you and your family should practice, then replace or recharge the extinguisher. You will find your local fire department will be happy to assist

you and answer any questions.

WARNING: DON'T SMOKE IN BED!

KEEP MATCHES OUT OF REACH OF SMALL CHILDREN!

DON'T CLEAN WITH FLAMMABLE MATERIAL!

KEEP FLAMMABLE MATERIAL AWAY FROM OPEN FLAME!

We have all heard these warnings many times, but they are <u>still</u> among the leading causes of fires.

Other safety information on the LPG system of your motorhome is located in the Plumbing Section of this manual.

#### **SMOKE ALARM**

OPERATION, TESTING

**OPERATION:** The smoke detector is operating once a fresh battery is installed and testing is complete. When products of combustion are sensed, the unit sounds a loud 85 db pulsating alarm until the air is cleared.

**HUSH CONTROL:** The "**HUSH**" feature has the capability of temporarily desensitizing the alarm circuit for approximately 7 minutes. This feature is to be used only when a known alarm condition, such as smoke from cooking, activates the alarm. The smoke detector is desensitized by pushing the "**HUSH**" button on the smoke detector cover. If the smoke is not too dense, the alarm will silence immediately and "Chirp" every 30-40 seconds for approximately 7 minutes. This indicates that the alarm is in a temporarily desensitized condition. The smoke alarm will automatically reset after approximately 7 minutes and sound the alarm if particles of combustion are still present. The "**HUSH**" feature can be used repeatedly until the air has been cleared of the condition causing the alarm.

NOTE: DENSE SMOKE WILL OVERRIDE THE HUSH CONTROL FEATURE AND SOUND A CONTINUOUS ALARM.

<u>CAUTION: BEFORE USING THE ALARM HUSH FEATURE, IDENTIFY THE SOURCE OF THE SMOKE AND BE CERTAIN A SAFE CONDITION EXISTS.</u>

**FLASHING L.E.D. LIGHT:** This smoke detector is equipped with a flashing red indicator light. The light is located under the test button and will flash every 30-40 seconds to indicate that the smoke detector is receiving power.

**TESTING:** Test by pushing the test button on the cover and holding it down for a minimum of 2 seconds. This will sound the alarm if all the electronic circuitry, horn and battery are working. If no alarm sounds the unit has defective batteries or other failure. You can also test the alarm by blowing smoke into it.

TEST THE ALARM WEEKLY TO ENSURE PROPER OPERATION. Erratic or low sound coming from your alarm may indicate a defective detector, and it should be returned for service.

#### **FALSE ALARMS**

Smoke detectors are designed to minimize false alarms. Cigarette smoke will not normally set off the alarm, unless the smoke is blown directly into the detector. Combustion particles from cooking may set off the alarm if the detector is located close to the cooking area. Large quantities of combustible particles are generated from spills or when broiling. Using the fan on a range hood which vents to the outside (non recirculating type) will also help remove these combustible products from the kitchen.

MODEL 0916 HAS A "HUSH" CONTROL that is extremely useful in a kitchen area or other areas prone to nuisance alarms. For more information refer to OPERATION AND TESTING.

If the detector does alarm, check for fires first. If a fire is discovered, get out and call the fire department. If no fire is present check to see if other reasons may have caused the alarm.

## **MAINTENANCE**

#### **BATTERY REPLACEMENT**

To replace the battery remove the detector from the mounting plate by rotating the detector in the direction of the "OFF" arrow on the cover.

The Model 0916 Smoke Detector uses one (1) 9 volt battery. The SMOKE DETECTOR is powered by a 9V carbon zinc battery (alkaline battery may also be used). A fresh battery should last for one year under normal operating condition. This detector has a low battery monitor circuit which will cause the detector to "chirp" approximately every 30-40 seconds for a minimum of seven (7) days when the battery gets low. Replace the battery when this condition occurs. USE ONLY THE FOLLOWING 9 VOLT BATTERIES FOR SMOKE DETECTOR REPLACEMENT.

Carbon-zinc type: EVEREADY 216 OR 1222

**GOLD PEAK 1604P OR 1604S** 

Alkaline type: EVEREADY 522; DURACELL MN1604;

Gold Peak 1604A

Lithium type: ULTRALIFE U9VL.

NOTE: REGULAR TESTING IS RECOMMENDED.

WARNING!! USE ONLY THE BATTERIES SPECIFIED. USE OF DIFFERENT BATTERIES MAY HAVE A DETRIMENTAL EFFECT ON THE SMOKE DETECTOR.

NOTE: IF AFTER BATTERY REPLACEMENT, THE UNIT CONTINUES TO CHIRP, WAIT FOR APPROXIMATELY 7 MINUTES. THE "HUSH" FEATURE MAY HAVE BEEN ACTIVATED ACCIDENTALLY WHILE CHANGING THE BATTERIES AND WILL RESET AUTOMATICALLY.

#### **CLEANING YOUR DETECTOR:**

To clean your detector remove it from the mounting bracket as outlined in the beginning of this section.

You can clean the interior of your detector (sensing chamber) by using your vacuum cleaner hose and vacuuming through the openings around the perimeter of the detector.

The outside of the detector can be wiped with a damp cloth.

## AFTER CLEANING, REINSTALL YOUR DETECTOR. TEST YOUR DETECTOR BY USING THE TEST BUTTON.

#### LIMITATIONS OF SMOKE ALARMS:

WARNING!! Smoke detectors are devices that can provide early warning of possible fires at a reasonable cost; however, detectors have sensing limitations. Ionization type detectors offer a broad range of fire sensing capability but are better at detecting fast flaming fires than slow smoldering fires. Photoelectric detectors sense smoldering fires better than flaming fires. Home fires develop in different ways and are often unpredictable. Neither type of detector (photoelectric or ionization) is always best, and a given detector may not always provide warning of a fire. Also, smoke detectors do have limitations. For a battery powered detector the battery must be of the specified type, in good condition, and installed properly. AC powered detectors will not operate if AC power has been cut off such as by an electrical fire or an open fuse. Smoke detectors must be tested regularly to make sure the batteries and the detector circuits are in good operating condition.

Smoke detectors cannot provide an alarm if smoke does not reach the detector. Therefore, smoke detectors may not sense fires starting in chimneys, walls, on roofs, on the other side of a closed door or on a different floor. If the detector is located outside the bedroom or on a different floor, it may not wake up a sound sleeper. The use of alcohol or drugs may also impair ones ability to hear the smoke alarm. For maximum protection a smoke detector should be installed in each sleeping area on every level of a home.

Although smoke detectors can help save lives by providing an early warning of a fire, they are not a substitute for an insurance policy. Home owners and renters should have adequate insurance to protect their lives and property.

#### **GOOD SAFETY HABITS**

#### **DEVELOP AND PRACTICE A PLAN OF ESCAPE:**

- Make a floor plan indicating all doors and windows and at least two (2) escape routes from each room. Second story windows may need a rope or chain ladder.
- Have a family meeting and discuss your escape plan, showing everyone what to do in case of fire.
- Determine a place outside your home where you all can meet if a fire occurs.
- Familiarize everyone with the sound of the Smoke Alarm and train them to leave your home when they hear it.
- Practice a fire drill at least every six months. Practice allows you to test your plan before an emergency, you may not be able to reach your children. It is important they know what to do.

## WHAT TO DO WHEN THE ALARM SOUNDS:

- Leave immediately by your escape plan. Every second counts, so don't waste time getting dressed or picking up valuables.
- In leaving, don't open any inside door without first feeling its surface. If hot, or if you see smoke seeping through cracks, *don't open that door*! Instead use your alternate exit. If the inside of the door is cool, place your shoulder against it, open it slightly and be ready to slam it shut if heat and smoke rush in.
- Stay close to the floor if the air is smokey. Breathe shallowly through a cloth, wet if possible.
- Once outside go to your selected meeting place and make sure everyone is there.
- Call the fire department from your neighbors home not from yours!
- Don't return to your home until the fire officials say that it is all right to do so.

There are situations where a smoke detector may not be effective to protect against fire as stated in the NFPA standards 72.

#### For instance:

- a) smoking in bed;
- b) leaving children home alone;
- c) cleaning with flammable liquids, such as gasoline.

Further information on fire safety can be obtained in a pamphlet titled "IN A FIRE SECONDS COUNT" published by the NFPA, Batterymarch Park, Quincy, Mass. 02269.

#### SERVICE AND WARRANTY

If after reviewing this manual you feel that your smoke alarm is defective i any way, do not tamper with the unit. Return it for servicing to: FYRNETICS, INC., 1055 STEVENSON CT./STE 102W, ROSELLE, IL 60172. (See Warranty for in-warranty returns).

## **CARBON MONOXIDE ALARM**

## **OPERATING INSTRUCTIONS**

**TEST PROCEDURE:** These test procedures should be carried out regularly to insure proper operation of the detector at all times. Failure to do so may result in the detector not alarming in the presence of CO.

#### WARNING

Test detector operation after vehicle has been in storage, before each trip, and at least once per week during use.

## Important: Read through these steps before performing the test

Any time the unit has been disconnected and then reconnected to power, there will be an audible "chirp" of the alarm and the LED will blink green for approximately four minutes. During this time the unit is running a check of all components except the LED and the audible alarm. To check the LED and audible alarm —

- Press the TEST button. You will hear the loud and piercing alarm and observe the LED is blinking red.
- Press the TEST button and hold it in until the alarm stops sounding.

If you do not hear the alarm or see the LED blinking red return the unit to your nearest service center.

#### **STORAGE**

When the RV is not to be used for long periods of time, the detector should be disconnected from power. Otherwise, over the course of three to five months, it could drain the battery (similar to clocks and other electric devices).

#### **CLEANING**

To clean, use mild soap and water. <u>DO NOT</u> use cleaning fluids which contain volatile organic compounds such as alcohols or propane. Cleaning spaces should be well ventilated when cleaning supplies or similar contaminants are used.

#### WARNING

Do not forget to reconnect power when putting your RV back into use or the detector will not detect the presence of carbon monoxide (Co) which can be fatal.

#### CO DETECTION

As long as the detector does not measure a concentration of CO greater than 100 ppm there will be no visual or audible indication and the unit will simply indicate that it is working by displaying a steady green light at the LED.

## PREALARM INDICATION OF CO

Whenever the measured concentration of CO exceeds 100 ppm the detector will provide a visual indication of the amount present in the air by alternating the steady green light of the LED with a blinking red color a number of times every 8 seconds (See Table below).

**Note:** The exact amount of ppm present in the air as measured by the detector will vary somewhat depending upon the temperature of the ambient air and the humidity.

The following table summarizes the visual indications of the LED for levels of carbon monoxide gas being detected at the sensor.

PPM*Level	Max. Time to alarm	Red Flashes	Frequency
0-100	90 Minutes	None	N/A (steady green)
100-200	35 Minutes	1	every 8 seconds
200-400	15Minutes	2	every 8 seconds
400-800	Less than 15 Minutes	4	every 8 seconds
>800	Less than 10 Minutes	8	every 8 seconds

<sup>\*</sup>Parts Per Million

Under these pre-alarm conditions, if no one is exhibiting the effects of carbon monoxide poisoning (headache, dizziness, nausea, etc.), you should take the following actions:

- Immediately get fresh air into premises or vehicle
- Call a qualified technician to inspect the logical sources for carbon monoxide and adjust, repair, or replace as needed.

The detector takes into account the amount of time that a certain concentration of CO is present before giving an indication. Therefore it many take an equal amount of time for the detector to go back to the steady green state.

If the measured CO concentration persists beyond safe limits defined by the UL Standards, the detector will go into alarm conditions.

#### ALARM CONDITIONS

As the concentration of CO present persists, the exposure will approach the alarm condition.

#### WARNING

Actuation of this device indicates the presence of carbon monoxide (CO) which can be FATAL.

## IF THE ALARM SOUNDS, FOLLOW THESE STEPS:

- 1. If anyone has a headache or an upset stomach, call the Fire Department and immediately move to a location which has fresh air. DO A HEAD COUNT TO CHECK THAT ALL PERSONS ARE ACCOUNTED FOR. DO NOT REENTER PREMISES UNTIL IT HAS BEEN AIRED OUT AND THE PROBLEM CORRECTED! If no one exhibits symptoms of discomfort associated with CO poisoning, simply;
- 2. Operate reset button,
- 3. Turn off all appliances, vehicle, or other sources of combustion at once (furnace, water heater, wood (coal, kerosene) burning stove or heater, RV, automobile, or the like).

## IF WARNING SIGNAL IS ACTIVATED,

- 4. Immediately get fresh air into the premises or vehicle.
- 5. Call a qualified technician and have the problem fixed before restarting appliances or vehicle.

## LP GAS DETECTOR

In the kitchen area of your unit, approximately six inches above the floor, is the LP gas detector. LP gas is a mixture of gases produced and sold commercially as a fuel for heating and cooking appliances. LP gas is highly flammable and, as a result, can be explosive if ignited under certain circumstances. LP gas is heavier than air and, if confined in a closed space, will accumulate close to the floor. When the LP gas concentration in your unit exceeds 2000 ppm the detector will provide a visual and audible alarm by sounding a buzzer and flashing the red LED two times per second.

#### WARNING

Activation of this detector indicates the presence of LP gas which can cause an explosion and/or fire. This normally indicates a leak in the LP gas installation or a LP gas appliance. Extinguish all open flames, open your windows and door and evacuate the unit immediately. Do not activate any electrical switch. Turn off the LP at your gas bottle(s). DO NOT RE-ENTER YOUR UNIT UNTIL THE PROBLEM HAS BEEN CORRECTED BY A QUALIFIED REPAIR TECHNICIAN.

#### **OPERATION**

Your LP gas detector is wired directly to your vehicle battery and incorporates a 1 amp. in-line fuse. When the device is operating normally the green LED will be lit.

#### **WARNING**

It is not recommended that the detector be disconnected from the battery during periods of storage. There is a small heater on the sensor of the device which "burns" away impurities in the sir during periods of normal use. During periods when power is interrupted, impurities can build up on the sensor. When power is returned to the detector the detector alarm may activate until the impurities are "burned" off. This could take a number of hours, during which time the alarm will be constantly "on".

#### **DETECTOR TEST**

Press the test button for 5 to 6 seconds until the alarm sounds then release the test button. The red LED should flash and the alarm sound for approximately 4 minutes. This test should be performed at least once a week during normal vehicle operation, and after periods of storage, and before each trip.

#### LOW VOLTAGE

Below 10 VDC the detector will continue to operate but will blink alternately green and orange. Below 8 VDC the unit will behave erratically and will eventually shut off. To ensure proper operation, do not operate the unit below 10 VDC.

#### COMPONENT FAILURE

The failure of any circuit component will cause the detector to display a continuous orange LED fault light and a short beep indicating failure. If this occurs, immediately contact your dealer or Airstream Customer Service for the name of the nearest detector service center.

Please read the operating instructions for your detector which have been supplied with the paper work of your unit.

#### **OVERNIGHT STOP**

In time you will develop a knack for spotting wonderful little roadside locations by turning off the main highway and exploring. There are many modem recreational vehicle parks, including State, County and Federal parks with good facilities, where you may obtain hookups of electrical, water and sewer connections. Directories are published which describe in detail these parks and tell what is available in the way of services and hookups.

## Overnight or Weekend Trips

On overnight or weekend trips, chances are you will not use up the capacity of the sewage holding tank, deplete the water supply, or run down the batteries which supply the living area 12 volt current.

#### **Longer Trip**

On a longer trip, when you have stayed where sewer connections and utility hookups were not available, it will be necessary for you to stop from time to time to dispose of the waste in the holding tank and replenish the water supply. Many gas stations (chain and individually owned) have installed sanitary dumping stations for just this purpose. Booklets are available which list these dumping stations.

When you stop for the night, your Airstream motorhome is built to be safely parked in any spot that is relatively level and where the ground is firm. Your facilities are with you. You are self-contained. Try to pick as level a parking spot as possible.

## **Hydraulic Leveling Jacks**

Some models are equipped with hydraulic leveling jacks that can be deployed. Complete instructions are included with the Owners Packet. Be sure to read the directions completely prior to operating the jacks. The jacks will be able to level your unit in most modern campgrounds. However, their capabilities are limited, and in some situations you will have to use planks to level the coach.

All you need to do to enjoy the self-contained luxury is to:

- 1. Turn on LP gas supply and light appliance pilots if required.
- 2. Turn on water pump and open faucets until air is expelled from the system.
- 3. Deploy slide-out if so equipped and you desire the extra space.

Before moving on, turn off the LP gas and water pump, check your campsite, both for cleanliness and also to be sure you haven't left anything behind. Make sure everything is properly stowed.

#### WINTER TRAVELING

Traveling in your motorhome during the cold winter months can be a most exhilarating experience.

There are, of course, certain precautions which must be taken as you would in your home in low temperatures.

WARNING: Always shut off the LP gas when gasoline is added to the fuel tank.

Some states do not allow LPG to be turned on while moving. While traveling in these states you must use your common sense. How cold is it? How long will it be before you can turn the heat back on? Is the temperature dropping or rising? Remember, the wind chill factor when driving 50 MPH will cause the interior of the motorhome to cool much faster than when it is parked.

- 1. You must have a plentiful supply of propane gas.
- 2. If your stay is longer than overnight, you should endeavor to have 120-volt electricity available. The batteries, fully charged, will not last more than about 15 hours in freezing weather. Of course, you can run your generator to recharge the batteries, or even use the generator continually.
- 3. Minimize use of electricity if 120 volt power source is not available.
- 4. Leave cabinet doors, bed doors and wardrobe doors slightly open at night to allow circulation of air in and around all furniture components.
- Use propylene glycol type antifreeze in waste and drain water tanks to prevent freezing.
   Quantity of antifreeze needed will vary with ambient temperature and the amount of liquids in tank.
- 6. For extended stays in cold weather, insulate the water line outside the motorhome. You should remember that low temperatures in combination with high winds cause an equivalent chill temperature much below what your thermometer is reading. For instance, with an outside temperature of zero degrees, and the wind velocity of 10 miles per hour, the equivalent chill temperature is minus 20° F.

#### Condensation

It is also important to guard against excessive humidity inside your motorhome during winter campouts. When windows and window frames fog up or "sweat," it means that there is too much moisture in the air. Moisture comes from water vapor and water vapor is the direct result of water evaporating.

Many things such as baths and showers, boiling foods, washing dishes, washing clothes, even breathing, contribute to evaporation. The inside air can only absorb so much of this moisture before it becomes saturated. At this point it can hold no more, and any additional water vapor condenses back to liquid water in the form of droplets on any available cool, solid surface. Temperature has a direct effect on the airs saturation point. Cold air holds less moisture than warm air. For this reason, the air immediately adjacent to cold outside walls and windows cools down and causes water vapor to condense and form moisture droplets, even though warmer inside surfaces are still dry.

The best way to keep condensation under control is to reduce moisture producing activities. It is important to provide adequate ventilation and keep the air circulating as much as possible.

Use your exhaust fans to remove moisture before water vapor mixes with the air. Open windows slightly once in a while, while operating fans, to bring in drier outside air and aid in overall air circulation. In extremely cold weather, when outside ventilation is not practical, it may be necessary to use a small dehumidifier to aid in reducing condensation.

There is no substitute for common sense in cold weather.

**Note:** The Airstream motorhome is built as a recreational vehicle and is not intended as a permanent dwelling or for more than temporary use in sub-freezing temperatures.

#### **EXTENDED STAY**

Making a long trip is not very different from making a weekend excursion. Since everything you need is right at hand, you are at home wherever you go. When packing for an extended trip, take everything you need, but only what you need.

Some models are equipped with Hydraulic Leveling Jacks that can be deployed. Complete instructions are included with the Owners Packet. Be sure to read the directions completely prior to operating the jacks.

When you plan to stay in the same place for several days, weeks or months, you will want your motorhome to be as level as possible. Check the attitude with a small spirit level set on the inside work counter. If a correction is necessary, then you must first level from side to side. This can be done most easily by driving up a small ramp consisting of 2" x 6" boards tapered at both ends. WE DO NOT RECOMMEND PLACING TIRES IN A HOLE FOR LEVELING.

CAUTION: To operate the SLIDE-OUT room you MUST first remove the interior travel locks. These are located on the top of the room on the interior of the coach and are out of your normal sight. There are two and they provide pressure between the exterior wall of the coach and the top facer board on the room. They have caming action and the tension is adjustable. The first time you remove them you'll probably need to stand on a stable step stool to see how the cam is released. After seeing their simple operation you may abe able to operate them from the floor according to your height and strength. Also make sure the drivers seat is forward enough to clear the room.

**NOTE:** For best performance it is recommended the vehicle be leveled prior to extending and retracting the room(s).

To extend the room(s) simply depress the switch to "out" and hold. You'll be able to tell when the end of the stroke is reached by the sound of the motor. If you try to extend the room passed its limits the motor will shut off.

The room may be stopped in any position but the best weather seal occurs when the room is fully extended.

Hook Up to Water by attaching a 1/2" minimum high pressure water hose to the city water service.

Plug the Electrical Cable into the City Power Service. Be sure you have the wire grounded and have the proper polarity. See Electrical Section for technical details.

A Cable TV Hookup is located on the roadside rear corner of the motorhome. It is already wired into the existing system, so the exterior connection is all that is required.

To use the Generator you simply start it. All switching is done automatically. The generator can be started either from your interior monitor panel, dash switch or the switch on the generator itself.

It is easier on your generator and appliances if you'll allow the generator to reach its normal operating speed (about a minute) prior to applying heavy current loads.

Hook your Waste Drain Hose into the Sewer Disposal Facility and attach to the drain outlet in your motorhome. For details on this procedure see Drain and Waste System Section.

Turn on the gas supply and light the oven pilot if applicable. Lighting a top range burner to bleed any air from the system will make it easier to start other appliances.

When you stay for extended periods where electric or water hookups are not available, you must make regular checks on the condition of your 12 volt battery and the contents of your water tank. Carry drinking water in a clean bucket to refill your tank. When your waste tank nears capacity, move your motorhome to a dumping location.

#### **EXTERIOR**

The side walls and roof of your motorhome are laminated fiberglass. There is no magic to caring for your motorhome. As a general rule of thumb, we recommend the motorhome be washed about every four weeks and waxed in the spring and fall. To make sure your new unit is always protected, you should wax it immediately or have your dealer wax it just prior to delivery. In industrial areas cleaning and waxing should be done on a more frequent schedule.

ALWAYS CLEAN YOUR MOTORHOME IN THE SHADE OR ON A CLOUDY DAY WHEN THE SKIN IS COOL. Oil, grease, dust and dirt may be removed by washing with any mild non-abrasive soap or detergent. Cleaning should be followed by a thorough clean water rinse. Spots and streaks may be prevented by drying the unit with a chamois or a soft cloth.

After cleaning and drying, a good grade of automotive paste or liquid wax will increase the life of the finish, especially in coastal areas where the finish is exposed to salt air, or in polluted industrial areas. It will also protect the shell from minor scratches and make subsequent cleaning easier.

It is important to remove sap, gum, resin, asphalt, etc., as soon as possible after they appear by washing and rewaxing. Sunlight and time will bake-harden these materials, making them almost impossible to remove without heavy buffing. If asphalt remains on the motorhome after washing, use a small amount of kerosene on a rag and wipe the spots individually, being careful not to scratch the finish.

If your motorhome has become chalked, or has rub marks, the "new" look can usually be restored. This is best left to a professional. We find Marinas, with their many years of experience with fiberglass, to be one of the best sources of expertise, and stock waxes and cleaners designed for fiberglass.

It is recommended that the caulking and sealant used in external seams and joints such as window frames, light bezels, beltline and rub-rail molding, etc., be checked regularly. If this material has dried out and becomes cracked or checked, or if a portion has fallen out, it should be replaced with fresh material to prevent possible rain leaks. Caulking and sealing material is available from your dealer.

#### **Roof Ladder and Storage**

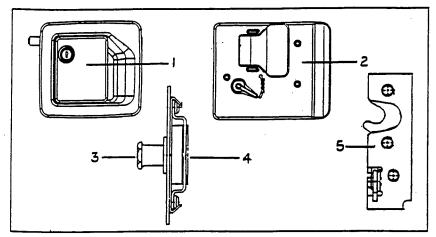
For traveling, the lower section of the ladder should be removed and stored in one of your lower compartments.

To remove, pull out the cross pins in the lower sockets then pull the bottom of the ladder out of the sockets. This will allow the top of the ladder to be unhooked freeing it for storage.

CAUTION: Roof storage is limited to 250 pounds evenly distributed.

#### MAIN DOOR LOCK

## LOCK ASSEMBLY, MAIN DOOR

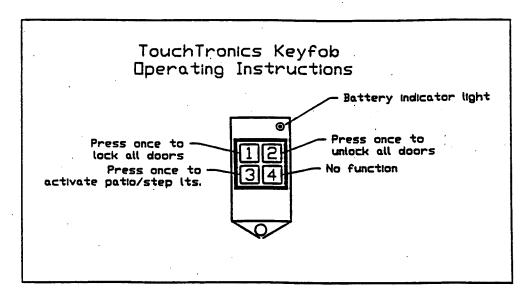


- 1. Outside housing assembly
- 2. Inside plate
- 3. Striker bolt
- 4. Caged nut
- 5. Rotary latch

## **KEYLESS DOOR LOCK (OPTIONAL)**

The dead bolt portion of your motorhome may be controlled by radio signals produced by the key fob shown below. One characteristic of this system is the one second delay after a pad has been depressed.

NOTE: When you use the keypad to turn the patio lights ON you must also use the keypad to turn them OFF. The same goes for the switch inside the door. . . . if you turn the lights on with this switch, you must use the same switch to turn them off. You cannot turn the lights on with the keypad and off with the switch.



There are four major components operating the door locks; control module/receiver, dash switch, relay, and drive motors. The control module is mounted on the inside wall just behind the main door. The relay operates in conjunction with the dash switch and is located up under the left hand side of the dash. The drive motors, located at each lock, are polarity sensitive. When testing you'll find the wires at the drive motors will switch from positive to negative and vice versus as the key fob or dash switch is being operated. When using the dash switch the relay under the dash performs the polarity switching functions and the control module/receiver serves the same function when the key fob is used.

A detailed wire layout is provided in the electrical section of this manual.

#### INTERIOR

The luxurious interior of your Airstream motorhome has been designed for comfort, convenience, durability and appearance. An understanding of the operational procedures and maintenance techniques of the interior appointments will add to your pleasures, as well as to the long life of your motorhome.

## Lounges

To convert the Deluxe Sofa into a bed, pull the armrest straight up and out of their bracket, grasp the front edge of the seat, raise and pull it toward the aisle of the motorhome. The back rest will slide down into place automatically.

#### **Dinette**

The standard dinette will make into a bed. Swing the table leg up against the bottom of the table, lift up on the front of the table and it will unhook from the wall. Now pull out and the swinging hinge will let the back edge of the table down level with the supports attached to the front of the seat bases. Use back rest to fill in over the table.

#### **Cocktail Chairs**

The cocktail chairs have two adjustments. As you sit in the chair, one lever will protrude on the left side. Releasing this lever allows the chair to rotate.

On the right side is another lever. Releasing this lever will allow the chair to slide forward and backward.

CAUTION: Rotating the chair when it's slid back against the wall can damage the

#### **Fabric Cleaning**

All material should be professionally dry cleaned to remove any overall soiled condition. These materials may be spot cleaned, however, using the cleanability code instructions as listed. Sample swatches are furnished to our dealers. The dealer will be able to give you the cleaning code and part number for the fabrics used in your particular motorhome.

The following are the cleanability code instructions for the various fabrics used in the Airstream motorhomes:

#### **Cleanability Codes**

#### CODE W-S

Fabric care. Spot clean this fabric either with a mild solvent or a water-based cleaning agent. When using a solvent or dry cleaning product, follow instructions carefully and clean only in a well-ventilated room. Avoid any product which contains highly toxic carbon tetrachloride. You may also use an upholstery shampoo product or the foam from a mild detergent. With either method, pretest a small area before proceeding. Use a professional furniture cleaner when an overall soiled condition is reached.

#### CODE S

Fabric care. Spot clean, using a mild, water-free solvent or dry-cleaning product. Carefully follow instructions on such product. Clean only in a well-ventilated room. Avoid any product containing carbon tetrachloride, which is highly toxic. Pretest small area before proceeding. Use a professional furniture cleaner when an overall soiled condition is reached.

#### CODE W

Fabric care. Spot clean, using the foam only from a water-based cleaning agent, such as mild detergent or non-solvent upholstery shampoo product. Apply foam with a soft brush in a circular motion. Vacuum when dry. Pretest small area before proceeding. Use a professional furniture cleaner when an overall soiled condition is reached. The above code was designed by the manufacturer of the fabric.

CAUTION: Never remove cushion cover for separate cleaning or washing. Any tumble cleaning method can destroy the backing, shrink or otherwise damage upholstery.

SMOKING WARNING: Keep your furniture and family safe from fires caused by careless smoking. Do not smoke when drowsy. Remove immediately any flowing ash or a lighted cigarette which falls on furniture. Smoldering smoking material can cause upholstered furniture fires.

#### **Drapes**

Use the following procedures to remove drapery panels for cleaning:

#### Front Wrap Around Drapes

- 1. Remove screws securing rear end of drapery track bracket to wall, both roadside and curbside.
- 2. Slide draperies to the rear until they are clear of track.
- 3. After reinstalling drapes, replace screws in bracket.

CAUTION: All drapery materials and mattress covers must be professionally dry cleaned.

#### Shades

The day/night shades are opened and closed by grasping both knobs and sliding the shade straight up and down. Your choice of blind density is instantly available by using the appropriate set of knobs.

#### Carpet

The carpet can be cleaned with any good commercial carpet cleaner, or with a detergent and water. HOWEVER, BE CAREFUL NOT TO SOAK THE CARPET WITH WATER.

#### **Hardwood Flooring**

To clean hardwood floor use a solution of vinegar and water or Windex.

**WARNING**: Warn occupants of the vehicle when fresh wax has been applied, just like a home, the floor will be slippery.

#### Counter areas

The counter areas around the sink are of a high-pressure laminate and can be cleaned with soap and water, or you can use a common solvent on tough spots. Be sure no abrasive cleaner is used, as there is the possibility it could scratch the surface. A protective pad should always be placed under hot utensils.

#### Walls/cabinets

The vinyl walls of the motorhome can be wiped with any mild household cleaner. The wood grain panel also has a vinyl covering for easy care. The cabinet doors and framework are hardwood, so any good furniture polish can be used.

#### **Drawers**

Drawer removal - pull drawer out to stop then raise front of drawer to clear rollers,

CAUTION: Do not use any abrasive material on the vinyl covered walls.

#### **Bathroom**

CAUTION: The lavatory bowl and countertop in your bathroom should be cleaned with soap or detergent. NEVER USE SCOURING POWDER.

#### **Shower Stall**

To clean your ULTRA/GLAS shower stall unit, use warm water and one of the stronger liquid detergents. Do not use abrasive cleaners; they may scratch and dull the surface of your ULTRA/GLAS unit. Stubborn stains can be removed with solvents such as turpentine, paint thinner or acetone. Restore dulled areas by rubbing with an automotive-type liquid cleaner, then put the soft glow back into your ULTRA/GLAS unit with a light application of liquid wax.

WARNING: Do not wax the floor of the stall without using a bath mat afterward to prevent a dangerous slippery floor condition.

# **NOTES**

#### **PLUMBING**

## LPG SYSTEM

Your motorhome is equipped with a permanently mounted tank for LPG (Liquid Petroleum Gas). LPG burns with a clean blue flame. There are two basic types of LPG in common usage: Butane and Propane. Butane is widely used where temperatures are normally above freezing the year round, and Propane is used where subfreezing temperatures are common, since Butane freezes at 32°F as compared to -40°F for Propane. ALL OF THE ORIFICES IN THE LPG APPLIANCES ARE OF THE UNIVERSAL TYPE WHICH WILL BURN EITHER FUEL. How long a full tank of gas will last is dependent on usage. In cold weather, when you are using the furnace, large amounts of hot water, and cooking extensively, you will naturally use more than you will in warm weather, when you may do limited cooking. On the average, with normal cooking and other appliance use, you can probably count on one month of usage from the tank.

If you have allowed the tank to run out, air may have gotten into the lines. In this event the air must be forced out through the lines by gas pressure before you can light the pilots. Hold a match to the pilot of the appliance closest to the tanks until it lights and stays lit. Then move to the next closest, etc.

#### **WARNING**:

All pilot lights and appliances must be turned off during refueling of motorhome fuel tank and permanently mounted LPG tank. Gas lines should be checked periodically for leaks with ammonia free soapy water. Do not use open flame.

#### **CAUTION:**

Moisture in the LPG tank will cause a malfunction of the regulator in controlling proper pressure. This may result in the flame lifting off the burner, or the flame may go out frequently. Many refueling stations will add approximately 1/4 to 1/2 gallon of alcohol to lower the moisture temperature. Moisture will then pass through the regulator without the formation of ice crystals.

#### **WARNING:**

If gas can be smelled, appliance pilots fail to stay on, or any other abnormal situation occurs, shut off tank valve immediately and call on a qualified LPG service center or Airstream Service Center.

#### LPG Regulator

The LPG regulators used on Airstream motorhomes are designed for low pressure service, with a normal outlet pressure setting of 11.5 water column. Only personnel trained in the proper procedures, codes, standards, etc., should service regulators.

Have the regulator inspected each time the tank is refilled. Make sure the regulator vent opening on both first and second stage regulators does not become plugged by mud, insects, snow, ice, paint, etc. Vents must remain open.

Replace any regulator that has had water in the spring case, or shows evidence of external corrosion, or corrosion inside the spring case. Closely examine regulators directly connected to the container valve by means of a solid POL adapter (horizontal mounting) for signs of corrosion. (An Airstream Service Center is recommended for this service.)

#### **BASIC RULES FOR SAFETY**

<u>WARNING</u>: DO NOT store LP containers within vehicle. LP containers are equipped with safety devices that vent gas should the pressure become excessive.

<u>WARNING</u>: DO NOT use cooking appliances for comfort heating. Cooking appliances need fresh air for safe operation. Before operation open overhead vent or turn on exhaust fan and open window.

A warning label has been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen supply is limited due to the size of the recreational vehicle, and proper ventilation when using the cooking appliances will avoid dangers of asphyxiation. It is especially important that cooking appliances not be used for comfort heating as the danger of asphyxiation is greater when the appliance is used for long periods of time.

<u>WARNING</u>: Portable fuel burning equipment, including wood and charcoal grills and stoves, shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.

<u>WARNING</u>: A Warning Label has been located near the LP gas container. This label reads: DO NOT FILL CONTAINER(S) TO MORE THAN 80% PERCENT OF CAPACITY. Overfilling the LP gas container can result in uncontrolled gas flow which can cause fire or explosion. A properly filled container will contain approximately 80 percent of its volume as liquid LP gas.

<u>WARNING</u>: Do not bring or store LP gas containers, gasoline or other flammable liquids inside the vehicle because a fire or explosion may result.

#### **WARNING:**

#### If you smell gas:

- l. Extinguish any open flames, pilot lights and all smoking materials.
- 2. Do not touch electrical switches.
- 3. Shut off the gas supply at the tank valve(s) or gas supply connection.
- 4. Open doors and other ventilating openings.
- 5. Leave the area until odor clears.
- 6. Have the gas system checked and leakage source corrected before using again.

<u>WARNING</u>: 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.

#### LP TANK INSTALLATION

The regulator at the L.P. tank is under a black plastic cover. The protective cover certainly helps to keep the vent on the regulator from getting clogged by wasps or ice, but should still be checked regularly to make sure the vent remains clear.

WARNING: Do not attempt to seal regulator cover.

Fill valve Valve

Gauge

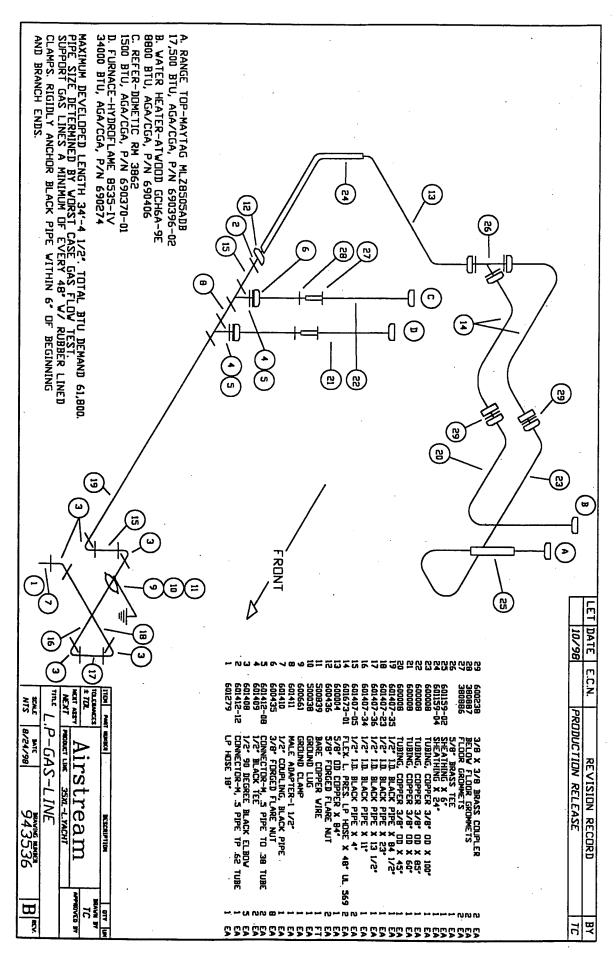
Vapor
Valve

Regulator
Cover

WARNING: Check vent each time tank is filled to make sure it's clear of obstructions.

## Gas Regulator Removal/Replacement

- 1. Shut off main gas supply at the tank.
- 2. Remove the plastic protective cover from the regulator assembly.
- 3. Using two wrenches, one to hold the line fitting and one to turn the flare nut, disconnect the regulator from the flexible rubber line.
- 4. Disconnect the regulator from the tank fitting. Remove regulator
- 6. To replace, reverse the removal procedure.



#### WATER SYSTEM - SELF CONTAINED

Most plumbing functions are accomplished in the plumbing utility compartment on the roadside of your motorhome. To fill your water tank, hook up a garden hose to the city water inlet then open the water tank fill valve in the upper right corner of the compartment. The water level can be monitored on your control panel above the range or the tank can be filled until water is expelled out of the tank overflow and is seen running on the ground under the vehicle.

NOTE: Once the water level has reached the height of the overflow, water will continue to be expelled for a few minutes after the fill valve is closed.

If it is more convenient for you, a water fill is also located on the side of the vehicle. Open the small access door, unscrew the cap, pull the air plug, insert hose and fill. The air plug relieves air pressure in the tank as it's being filled. As noted above, water will be expelled from an overflow valve for a short time once the tank is full and the fill hose has been removed.

Turn water heater by-pass valves to normal flow, open valves A and C. Close valve B. For winterizing B would be opened while A and C are closed. Access to the valves is through the right hand door under the galley sink and reaching to the right. In your motorhome the valves shown are in the same pattern but flat on top of the water heater.

Open the hot side of the galley or lavatory faucet and turn on the water pump switch located on the monitor panel. For some time the open faucet will only sputter. This is because the water heater is being filled and air is being pushed out through the lines. Once the water heater is full a steady stream of water will come from the faucet. Now open a cold faucet. It will sputter for a short time, but will soon expel a steady stream. All other faucets can now be opened until all air is expelled.

Once the system is filled with water and the faucets closed, the water pump will shut off. When a faucet is opened the pump will come

WATER HEATER
BY-PASS VALVES

HOT
COLD

back on automatically. If the faucet is just barely open it is normal for the pump to cycle on and off rapidly.

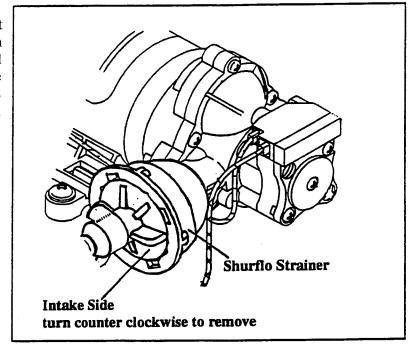
CAUTION: The water pump must be turned off when hooked up to city water supply and when you leave your Airstream unattended.

#### WATER PUMP AND STRAINER

The water pump and strainer are located in a lower storage compartment just in front of the rear wheels on the curbside. Access is gained by releasing the slide bolt and lowering the insulated door.

To clean strainer screen, first remove inlet connection from pump side of strainer. This will allow the intake side of the strainer to be rotated about 1/8 turn counter clockwise and removed. The screen part of the strainer will now be accessible for cleaning.

When reassembling, only rotate the inlet side of the strainer until the stops are felt. Sealing is preformed by the "O" ring and too much pressure will only break the strainer.



#### **Cleaning Water Storage Tank**

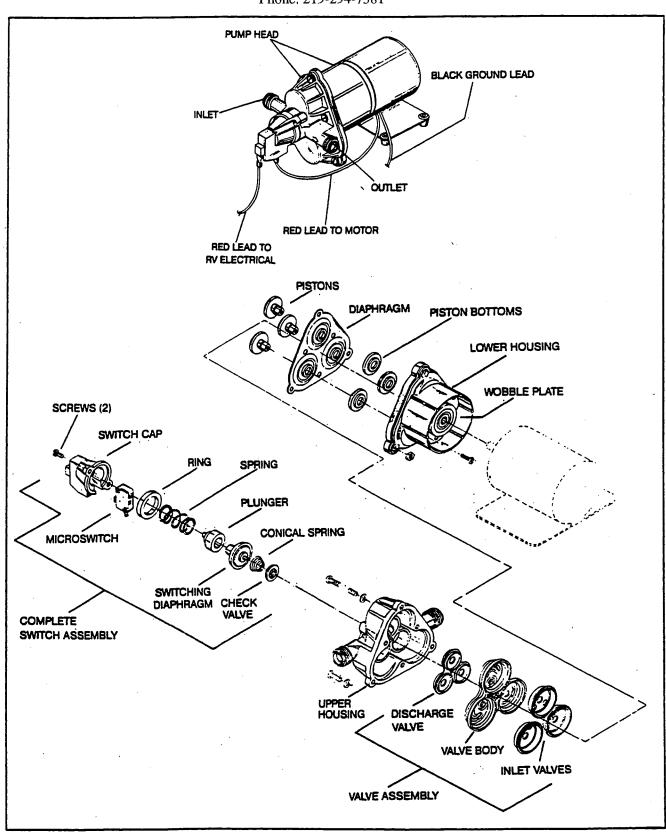
- 1. Prepare a sodium hypochlorite solution using potable water and household bleach (5 1/4 to 6%) in the ratio of 1/4 cup bleach to 1 gallon of water. (Common household bleaches are Purex and Chlorox.)
- 2. Pour 1 gallon of hypochlorite solution for each 15 gallons of capacity into the empty water tank.
- 3. Add enough potable water to completely fill the water system.
- 4. Allow closed system to stand for three hours.
- 5. Drain the hypochlorite solution from the system and refill with potable water.
- 6. Excessive hypochlorite taste or odor remaining in the water system is removed by rinsing the system with a vinegar solution mixed in the ratio of I quart of vinegar to 5 gallons of water.
- 7. Drain the system and flush with potable water.

#### WATER PUMP

Manufacturer:

Shur-Flo

1740 Markle Street Elkhart, Indiana 46514 Phone: 219-294-7581



## Switch and Check Valve Repair

The check valve, hydraulic switch mechanism and micro switch are accessible by removing the switch cover.

CAUTION: Care should be taken in removing the switch cover screws. Within the mechanism is a spring under compression.

## Replacement of Micro Switch

Occasionally the micro switch fails or an electrode is broken off. Proceed as follows: Remove the two screws holding the cap to the main body. Remember, a spring under compression is retained by this cap. With both screws out, allow the spring to extend fully. Then carefully lift off cap and spring. If only the micro switch is at fault, avoid disturbing the hydraulic elements remaining in the head. If examination of the hydraulic parts is required, remove them carefully by pulling. Be sure to note the order of removal.

To replace the micro switch, remove the spring and pull out the black retaining ring. This will allow the micro switch to fall free. Replace parts in the reverse sequence: Micro switch, black retainer, and the spring.

Reassemble cover to the main body. Switch cap may be pointed up or down as desired, providing wire has not been shorted.

Having replaced the micro switch, be careful to rewire correctly.

Note: If the positive wire from the battery is connected to the "B" terminal, the switch is bypassed and the pump cannot shut off. Pressure will build up until the motor stalls. If the proper fuse has been used, it will blow. If a larger fuse than recommended has been used, the motor will stall and may burn out.

#### **Check Valve Problems**

Due to contamination from debris or lime build-up, the check valve may fail to properly seat. To correct, clean out the area and replace the check valve element. If checking the check valve with air be certain to moisten the check valve to get an accurate check. The rubber seals more effectively when wet.

## Properly Installed, the Pump will:

PRIME:

The pump will automatically prime itself.

AIR-LOCK:

Pump will not air-lock as the compression stroke is powerful enough to

pressurize the entrapped air and force the check valve open.

**RUN DRY:** 

Pump will run dry for extended periods without damage.

**BATTERY DRAIN:** 

At free flow, the pump draws a mere 7 to 7 1/2 amps.

CHECK VALVE:

Built-in check valve prevents back flow and can protect the pump from

the dangers of high city water pressure (up to 200 PSI).

FULLY AUTOMATIC: The pump will automatically come on when the faucet or valve is opened. It delivers a smooth, steady flow of water and shuts off

automatically when the faucet is closed.

## **Trouble Shooting**

#### MOTOR DOES NOT OPERATE

- Is battery discharged?
- Are any wires disconnected?
- Are terminals corroded?
- Is switch in "ON" position?
- Is fuse good?
- Is water frozen in pump head?

#### MOTOR RUNS BUT NO WATER FLOWS

- Is water tank empty?
- Are there kinks in the inlet hose?
- Is air leaking into inlet hose fittings?
- Is inlet line or in-line filter plugged?
- If using a filter, check the line just before the filter.
- Is outlet hose kinked?

#### MOTOR RUNS BUT WATER "SPUTTERS"

Check to be certain that air has been bled off the lines and water heater. Also check for air leaks in the input side of the pump.

#### PUMP CYCLES ON AND OFF WHEN ALL OUTLETS ARE CLOSED.

The pump will normally cycle (go on and off) when a faucet is partially opened. If, however, it cycles when all valves are closed, check for a leak in the lines. It may be a leaky toilet valve or a dripping faucet. Do not forget to check the outside city water entry valve. It may be leaking.

If no leak can be detected, shut pump off. Remove the output hose where it joins the system (not at the pump). Insert a plug in the hose and clamp it. (You can make a perfect plug from a barb fitting: 1/2" size with a cap tightly screwed on the threads.) Turn the pump switch on. The pump should come on, run a few seconds, and then shut off. If it remains off, the problem is NOT the pump. The problem is in the system. If, however, the pump goes on and off, there may be a problem in the pump.

There may be an internal leak in the pump which allows water to escape from the high pressure area back into the low pressure area. Look for a pump valve held open or a crack in the plastic parts.

#### PUMP DOES NOT ACHIEVE SHUT OFF

The wall switch may be used for temporary control of the pump. A low battery charge may be the cause. Or the pump switch mechanism may be stuck. Try tapping the switch cap on the end of the pump with the handle of a screwdriver. If the pump appears in all other respects to run normally, but fails to shut off, you may have to replace the switch mechanism.

#### PUMP HEAD LEAKS

If the pump head leaks, first try to tighten the screws in the pump head assembly until they are snug.

CAUTION: Do not over tighten. The leak may be from a crack in the pump head assembly. If so, then replace.

One cause of the pump head cracking may be water freezing inside the pump head. If the leaking water is escaping back near the motor, check for a leaking or broken piston.

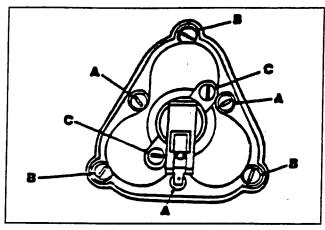
## **Pump Repair**

Screws (A) hold the entire pump head assembly to the motor.

Screws (B) hold the pump head face to the pump head main body.

Screws (C) hold the switch assembly to the front of the pump head.

Screws (A) would be removed to correct a problem in the "drive train" between the motor and pump head.



Screws (A) and (B) would be removed to correct a problem in the pump head valves or pumping chambers.

Screws (C) would be removed to correct a problem in the automatic switch or check valve.

#### **PUMP HEAD REPAIR**

Motor and drive train area. Rarely does a problem occur in this area of the pump head. If a part does fail, it is quite easily replaced. Just be certain to follow closely the sequence of parts as shown in the figure. Also be careful to align the flat surface in the drive adapter with the flat surface on the motor shaft.

#### LUBRICATION

If the lubricant appears dried out it should be be wiped off the bearing assemblies. A small amount of automotive wheel bearing grease should be applied to both sides of each bearing.

#### FAILURE TO PRIME

Failure to prime can be caused by the presence of some foreign matter lodged in the valve preventing it from seating. To correct, remove any such foreign bodies.

CAUTION: Do not remove the stainless steel screens. These filter screens should be cleaned without removing them from the plastic housing.

#### PUMP CHAMBER REPAIR

Replacement of broken piston.

To remove a piston, back out the screw holding the defective piston.

Now lift the corner of the diaphragm and remove the broken piston. Insert the new piston through the diaphragm and slide the retaining ring on. Rotate the piston until it drops into place in the drive plate. Replace the screw and tighten until snug.

CAUTION: Do not attempt to re-use a piston once it has been removed. The plastic stem, if used a second time, may not hold securely. The second thread path removes additional material and there is then no real bite.

## REPLACE A DIAPHRAGM

To replace a diaphragm follow the procedure used in removing the pistons. After removing the three pistons the diaphragm is loose and easily removed.

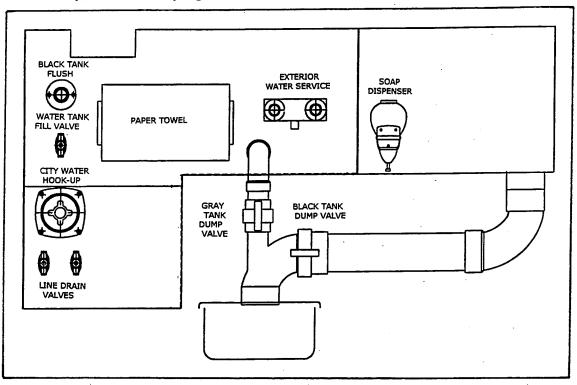
Screws (A) hold the piston.

Screws (B) hold the drive mechanism and should not be removed when replacing piston.

#### CITY WATER HOOKUP

In your utility compartment on the roadside of the motorhome is the city water hose connection and various other valves. They are clearly marked and the functions of each should have been explained by your dealer at time of purchase.

NOTE: When you use the "fresh water tank fill" valve and fill the tank it will expel any overflow under the coach. When you turn the fill valve off, the overflow will not cease immediately, but will slowly taper off.



Use a high pressure hose of at least 1/2" diameter. It should be one that is tasteless, odorless and non-toxic designed for RV use. The city water inlet is a standard garden hose thread. We suggest you carry two lengths of hose. This way you have the ability to reach hookups further away than normal, plus you have a spare hose should one fail or become damaged unexpectedly. Turn the water heater bypass to the normal flow position as described under self contained.

After hooking up the hose and turning on the city water valve provided in the park, slowly open a faucet. There will be a lot of spurts and sputtering until all the air is expelled from the motorhome system. If the water heater is empty it will take some time before all the air is expelled and you get a steady flow of water at the faucet. Once a steady flow is achieved at one faucet the others should be opened long enough to expel the air in the lines going to them.

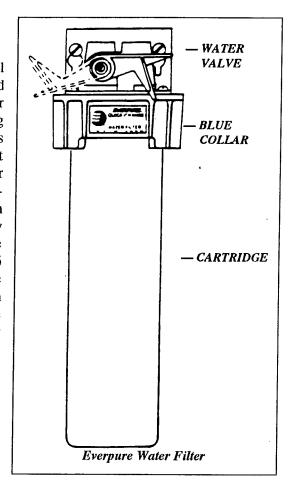
During city water operation the water pump switch should be in the off position. A check valve built into the pump protects it from city water pressure.

Your plumbing system has a built in pressure regulator to protect your lines and faucets from extremely high pressures on some city water systems.

Information on dump valve and black tank flush use can be found under DRAIN AND WASTE SYSTEM further back in this section.

## EVERPURE WATER FILTER (Not Available CSA)

The filter is located under the galley sink. It will remove even very fine dirt and colloidal matter, and eliminates most chlorine, phenol and similar distasteful odors and tastes, while delivering sparkling taste-free water for drinking and cooking. The filter is connected to the cold water galley drinking faucet only. The filter will also remove iron and sulphur provided the water supply is chlorinated, superchlorination will precipitate the iron and sulphur which will then be removed by the QC-2 Filter. To purify any questionable water fill the Everpure Chlorine Disinfectant Dispenser with liquid bleach and add 1/6 ounce (one teaspoonful) per 10 gallons of water in the water tank. The water will remain sparkling clear even to the end of the filter pack life, however, as the minute pores slowly fill up with impurities the flow rate will be gradually reduced. When it becomes too slow for convenience the cartridge can be very simply changed. Follow the instructions on the cartridge. We advise keeping a spare cartridge at all times.



## To Remove Used CartrIdge:

- 1. Shut off water by lifting valve handle counterclockwise as far as possible.
- 2. Turn colored ring all the way to the left. Ring will drop about 5/8".
- 3. Lift cartridge slightly and turn it further to the left until it can be disengaged.
- 4. Lower cartridge to disengage it from ring. Discard used cartridge.

#### To Install New Cartridge:

- 1. With colored ring in lowered position (turned all the way to the left), orient lug on cartridge with cutout under label on ring.
- 2. Insert cartridge straight up into ring as far as it will go. Holding colored ring steady, turn cartridge as far to the right as possible, without forcing.
- 3. The turn colored ring far to right to drive cartridge up into head.
- 4. To lock ring in place and turn water on, move valve handle down. Be sure handle leg engages ring locking-lug.

#### FAUCETS

#### Care and Cleaning

The surface of the faucets will stay bright and resist wear with a minimum of care. Strong detergents may tend to dull the finish. So when cleaning a faucet use only mild soap and water.

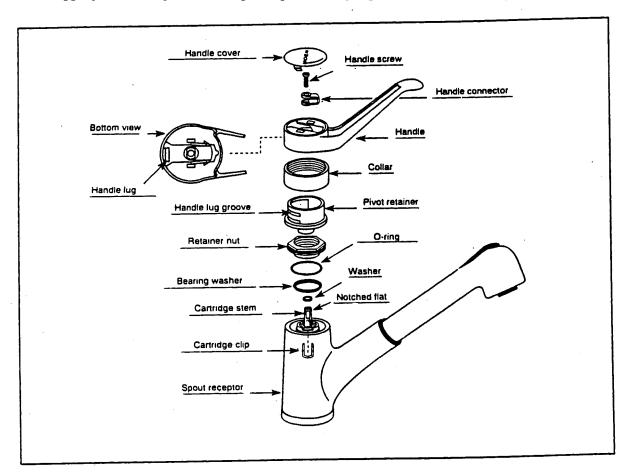
The finish on the faucets has been designed to retain its polished appearance without scouring. Stains and dirt remove easily without the use of scouring powders or abrasive polishes and cleaners. Use of such agents may cause scratches which mar the finish, and in time become dirt catchers and unattractive.

#### MOEN FAUCET CARTRIDGE REPLACEMENT

## Disassembly:

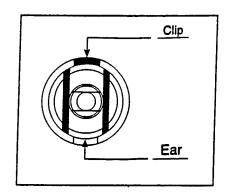
Turn OFF both hot and cold water supplies, then open faucet to relieve pressure and insure that water has been COMPLETELY shut off.

- 1. Carefully pry off handle cover with flatbladed instrument. Remove handle screw, using Phillips screwdriver.
- 2. Lift handle up and off. Unscrew and remove collar and pivot retainer being careful not to damage the finish.
- 3. Unscrew and remove retainer nut, o-ring, bearing washer, and washer. Pry out cartridge clip with a flat bladed instrument.
- 4. Using a Moen cartridge twisting tool (as furnished in the model 1225 cartridge pack, or a Moen cartridge puller) turn cartridge shell back and forth with pliers to loosen.
- 5. Gripping the cartridge stem with pliers, pull cartridge up and out of faucet body.



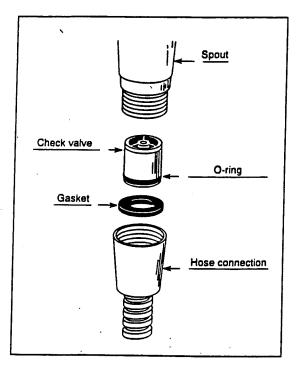
## Reassembly:

- 1. Be sure that cartridge ears are aligned with the slots in the valve body, front to back. With cartridge stem UP, insert new cartridge assembly by pushing down on top of cartridge ears.
- 2. Re-install the cartridge clip, washer, bearing washer, O-ring, and the retainer nut. Tighten snugly by hand.
- 3. Re-install pivot retainer with grooves facing the back of the faucet. Replace the collar, tighten snugly by hand. Replace the washer.
- 4. With cartridge stem notch facing forward, hook handle lug into handle lug groove. Align handle connector with cartridge stem and gently press handle onto cartridge stem.
- 5. Replace handle screw and press on handle cap.



## TO REMOVE AND CLEAN CHECK VALVE:

- 1. Unscrew pull-out spout from hose connection.
- 2. Using a thin-bladed instrument, carefully pry out check valve from spout, be careful not to damage O-ring.
- 3. Thoroughly flush check valve under warm faucet water.
- 4. Re-install as shown, making sure gasket is in place in hose connection.



#### LAVATORY FAUCET, MOEN

- 1. Lever handle
- 2. Cartridge
- 3. Retainer clip

## MOEN FAUCET CARTRIDGE REPLACEMENT

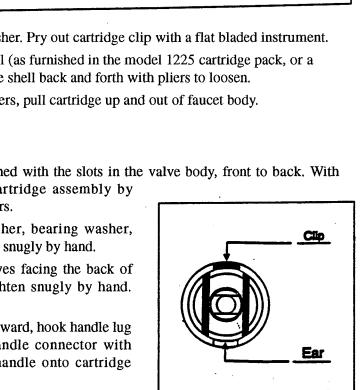
#### Disassembly:

Turn OFF both hot and cold water supplies, then open faucet to relieve pressure and insure that water has been COMPLETELY shut off.

- 1. Carefully pry off handle cover with flatbladed instrument. Remove handle screw, using Phillips screwdriver.
- 2. Lift handle up and off. Unscrew and remove collar and pivot retainer being careful not to damage the finish.
- 3. Unscrew and remove retainer nut, o-ring, bearing washer, and washer. Pry out cartridge clip with a flat bladed instrument.
- 4. Using a Moen cartridge twisting tool (as furnished in the model 1225 cartridge pack, or a Moen cartridge puller) turn cartridge shell back and forth with pliers to loosen.
- 5. Gripping the cartridge stem with pliers, pull cartridge up and out of faucet body.

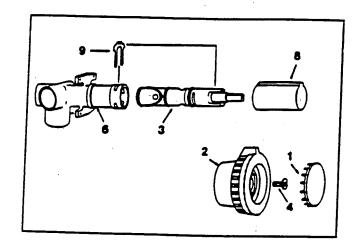
#### Reassembly:

- 1. Be sure that cartridge ears are aligned with the slots in the valve body, front to back. With cartridge stem UP, insert new cartridge assembly by pushing down on top of cartridge ears.
- 2. Re-install the cartridge clip, washer, bearing washer, O-ring, and the retainer nut. Tighten snugly by hand.
- 3. Re-install pivot retainer with grooves facing the back of the faucet. Replace the collar, tighten snugly by hand. Replace the washer.
- 4. With cartridge stem notch facing forward, hook handle lug into handle lug groove. Align handle connector with cartridge stem and gently press handle onto cartridge stem.
- 5. Replace handle screw and press on handle cap.



## MOEN SHOWER MIXING VALVE ASSEMBLY

- 1. Handle Cover
- 2. Handle
- 3. Cartridge
- 4. Handle Screw
- 5. Valve Body
- 6. Stop Tube
- 7. Retainer Clip



## Removal and Replacement

- 1. Cover carpet and cover bottom of shower pan to protect them from damage.
- 2. Disconnect city water. Shut off water pump.
- 3. Open drain valves
- 4. Open galley, lavatory and shower faucets and allow water to drain from lines.
- 5. Remove screws from top of faucet inspection cover in wardrobe. Tip back and remove water lines from faucet.
- 6. Pop out metal insert in control valve handle. Remove screw and pull knob off.
- 7. Remove screws in escutcheon plate.
- 8. Disconnect shower hose.
- 9. Wrap masking tape on chrome fitting so as not to scratch chrome.
- 10. Using wrench, remove fitting.
- 11. Mixing valve, shower outlet, tube and hot and cold feed line assemblies may then be removed through wardrobe inspection hole.
- 12. Replace by reversing above procedure.

**NOTE:** If existing hose clamps were destroyed in removal, they should be replaced with screw type clamps.

## LAVATORY FAUCET AND SHOWER MIXING VALVE CARTRIDGE REMOVAL

Shut off water pressure for entire system.

Disassemble: Remove handle cover. Take out handle screw and remove handle and stop tube. Lift out retaining clip and pull the cartridge out of the body by the stem.

CAUTION: Reinsert cartridge by pushing it all the way into the body and until the front of the ears on the cartridge shell are flush and aligned with the body. Replace the retainer clip so that the legs straddle the cartridge ears and slide down into the bottom slot in the body. This prevents the cartridge from rotating and locks it in the body. Reinstall stop tube and handle. Tighten handle screw securely, and replace the handle cover. The red flat on the stem must point UP when mounting the knob handle (down for lever handle).

If cold water is on left side and hot water is on right side (red flat pointed down), remove cartridge and reinstall 180°.

#### Removal and Replacement

- 1. Cover carpet and cover bottom of shower pan to protect them from damage.
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- 12. Replace by reversing above procedure.

**NOTE:** If existing hose clamps were destroyed in removal, they should be replaced with screw type clamps.

#### STORAGE AND WINTERIZING

When storing your motorhome for a short or long period, use the same precautions as you would in your own home in regard to perishables, ventilation and rain protection. In addition, for prolonged storage periods, flush out all the drain lines and the holding tanks. Also, drain the entire water system, including the water heater and the water storage tank. Instructions for draining the water system are explained in the following paragraphs on winterizing.

Twice a year, or after a long storage period, we suggest you take your unit into your Airstream dealer for a check-up and cleaning of the gas operated appliances

#### Living Area

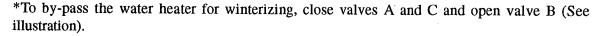
The main consideration in winterizing is to guard against freezing damage to the hot and cold water systems, the waste drain system (including the traps), the waste holding tanks, the water heater and the batteries. To completely winterize your motorhome follow this procedure:

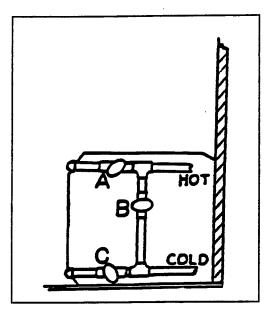
- 1. Level the motorhome from side to side and front to rear. Open all faucets.
- 2. Turn the water pump switch to the OFF position.
- In your utility compartment remove the flexible shower hose and drain. Open the two low point drain valves and the exterior water service faucet. Remove plug or open petcock on exterior face of water heater.
- 4. On the curbside of the coach in the lower compartment directly in front of the wheels are two more valves. Release the slide bolt and swing door down. One valve drains the water tank and the other is the low point drain for the curbside.
- 5. The toilet water valve should be left in open position while draining water.
- 6. While the water is draining from the system, depress the button on hand spray heads and drain all the water. Unscrew the heads on spray units and store. Don't forget the exterior water service.

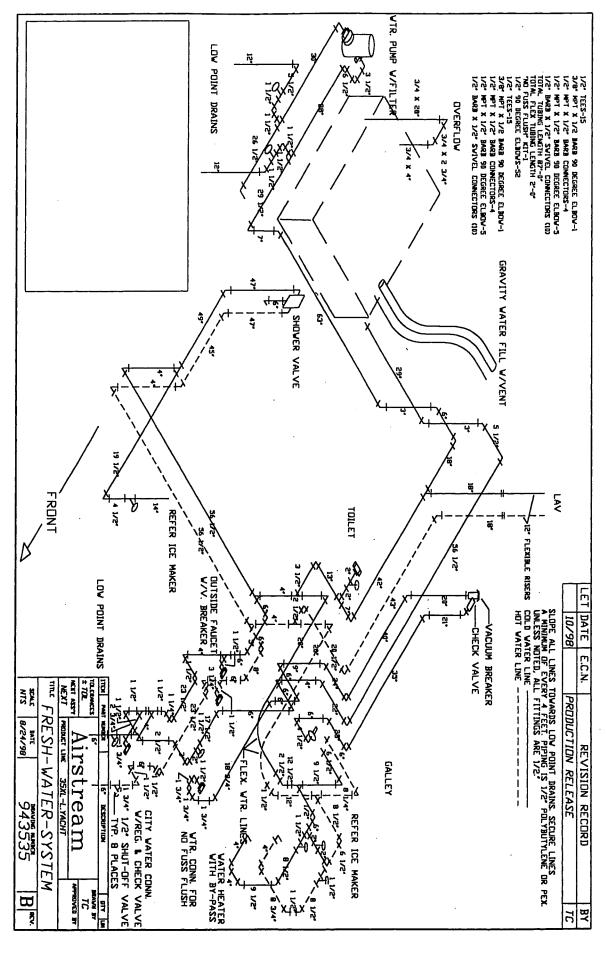
- 7. After the water has stopped running from the drain lines, apply at least 60 lbs. of air pressure at the city water inlet. Be sure the toilet valve and all drain valves and faucets are open and pump outlet hose is disconnected. This can be accomplished at a service station and will force any remaining water from the water heater and remove any water which may be trapped in low areas.
- 8. Pour a cup of non-toxic antifreeze into the lavatory, sink, and tub drains to prevent freezing water in traps.
- 9. Be sure to open the waste holding tank drain valves, and drain and flush the tanks thoroughly. (This is very important, as the sewage in the tank, if frozen, could seriously damage the tank.)
- 10. Remove water filter canister and dump.
- 11. Remove the batteries from your motorhome and store in a cool dry place where there is no danger of freezing. It is very important for optimum life of your battery to check it periodically and to keep it fully charged. This is especially true in winter months, when the temperature may drop below freezing.
  - Please refer to the battery section for more information on battery maintenance.
- 12. Remove any items (food, cosmetics, etc.) from the interior that might be damaged by freezing, or might damage the motorhome if containers break.

For additional winterizing protection, add non-toxic antifreeze (approved for drinking water systems) to your water lines using the following procedure:

- 1. Reconnect all lines except the hose to the pump inlet port. Close all drain valves (See Step 3 & 4).
- 2. Turn bypass valves to bypass position. (See Valve Manual).
- 3. Attach a length of hose to the pump inlet port. This piece of hose should be long enough for the free end to be inserted into and reach the bottom of the antifreeze container.
- 4. Dilute the antifreeze solution in accordance with the manufacturer's instructions.
- 5. Open all water faucets.
- 6. Insert hose length into the antifreeze container, turn the pump switch on, and run the water pump until the antifreeze solution fills all water lines. Flush toilet. Work shower hand spray while holding down in tub.
- 7. Shut off the pump and close all faucets.
- 8. Disconnect the hose length from pump inlet fitting and reconnect water system inlet line.







#### DRAIN AND WASTE SYSTEM

The drain and waste system of your motorhome includes waste holding tanks made from molded plastic. The MAIN HOLDING TANK enables you to use the toilet for several days away from disposal facilities. The waste water from the sink, shower, and bath and lavatory drain into the AUXILIARY HOLDING TANK. Each tank has its own dump valve; however, both tanks drain through a common outlet. Therefore, you need to make only one connection when hooking up in a trailer park with sewer facilities.

#### **Monitor Panel**

Check your monitor panel frequently. When the MAIN HOLDING TANK is completely full, sewage cannot be emptied from the toilet bowl. If the AUXILIARY HOLDING TANK is overfilled, drain water will "backup" into the tub and cause an unpleasant cleaning job. Never drain the tanks at any place other than an approved dumping station.

To empty both tanks, attach the sewer hose by pressing the bayonet fitting onto the outlet adapter and rotate clockwise until it feels solid and secure. Attach the outlet end of the hose to the sewage outlet, making sure that the hose is placed so that it will drain completely. The dump valves are located in the utility compartment on the roadside. Pull the dump valve handle out as far as it will go and wait until the tank is drained. If the auxiliary tank is drained after the waste tank, the soapy water will help keep the sewer hose and outlet clean.

#### When Parked and Connected to Sewer Outlet

When you are in a park and connected to a sewer outlet, keep the main holding tank dump valve closed, and empty the tank every few days or whenever it becomes almost full. ONLY BY SENDING A LARGE VOLUME OF LIQUID THROUGH THE MAIN HOLDING TANK AT A TIME WILL TOILET PAPER AND OTHER SOLIDS COMPLETELY WASH AWAY.

This practice will avoid the accumulation of solids in the main holding tank, which could lead to an unpleasant cleaning job. Should solids accumulate, close the dump valve, fill the tank about half full with water, then drive the motorhome for a few miles. The turbulence and surging of the water will usually dissolve the solids into suspension so the tank can be drained. Keep the auxiliary tank valve open when connected to a sewer outlet.

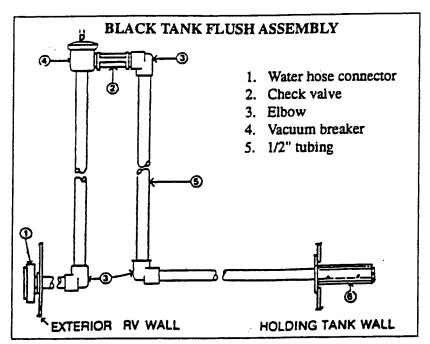
Draining the tanks as described will protect them from freezing during storage. When traveling in sub-freezing temperatures, use a winterizing solution designed for RV use. Follow the directions on the container.

CAUTION: Never put wet strength paper towels or tissues in your holding tank, since they won't dissolve and can "catch" in the mechanism of the dump valve. Colored toilet tissue is slower to dissolve than white. Most RV accessory stores offer tissue, designed for RVs, that will completely dissolve.

#### **BLACK TANK FLUSH**

The main holding tank must be flushed out until all paper and waste material is removed. Close the dump valve and refill the tank with 5 to 10 gallons of clean water and repeat until clean.

In the utility compartment on the left side is a water hose connector marked "black tank flush." To use, hook-up hose and turn on full force. Within the tank a spray head with a multipleholed head will spray the interior surface of the tank.



The gate valve should be closed for the first couple of minutes, then opened to let the water out in a rush. Repeat as needed.

## **Drain Systems Cleaning**

There are many deodorizers on the market in tablet, liquid, and powder form. These not only combat odor, but stimulate the bacteria that works to dissolve the solids in your tank. Picking a deodorizer with lubricating qualities will ease slide valve operation.

The only cleaning agents that can be used without causing harm to the system are household ammonia and trisodium phosphate in small quantities. Do not use any product that contains any portion of petroleum distillates. This attacks the rubber seals of your toilet and dump valve. Also, do not use any dish detergent or abrasive cleaners. All products should be marked approved for ABS drainage systems.

When winterizing drains use only recreational vehicle plumbing type antifreeze. These are sold through your dealer.

#### **TOILET**

Manufacturer:

Thetford Corporation 7101 Jackson Road Ann Arbor, MI 48103 313-769-6000

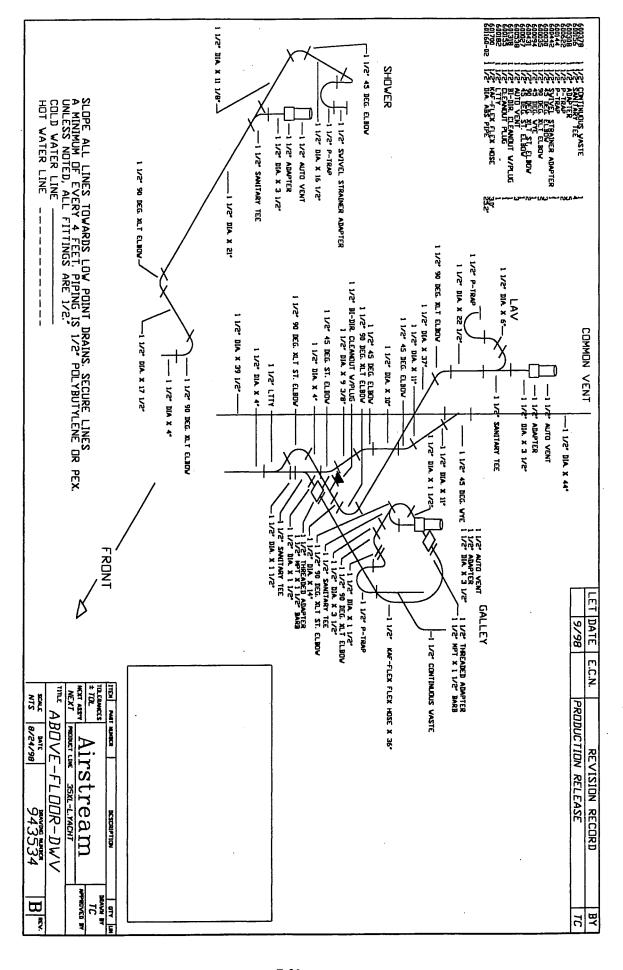
The RV toilet in your Airstream is a design that has been used for many years. There are two pedals. The large pedal opens and closes the slide mechanism, and the smaller pedal opens and closes a water valve.

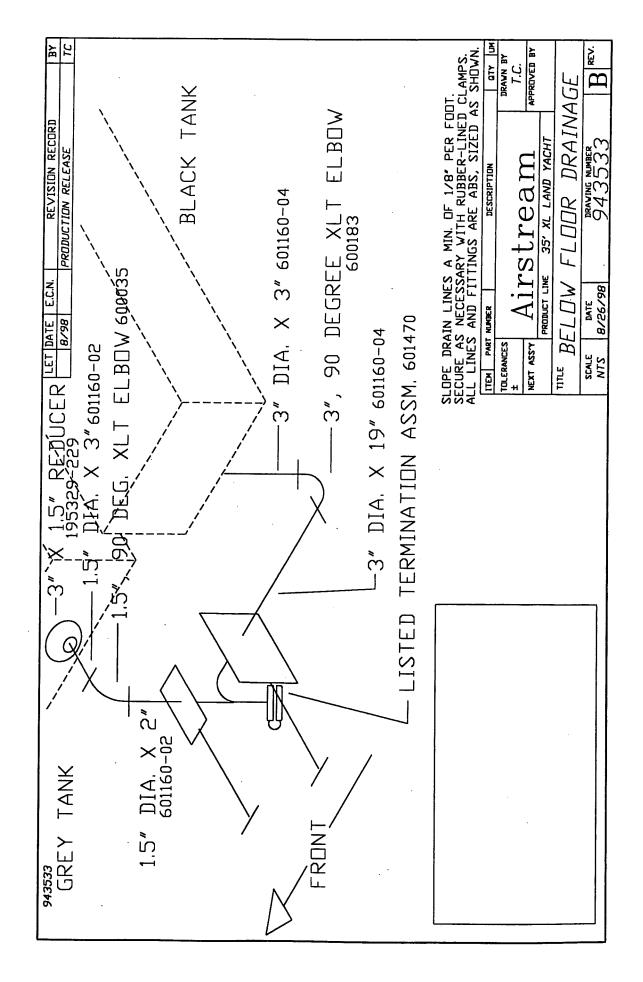
In normal use, when you are hooked up to city water, both pedals are depressed together. This dumps the sewage and fresh water and flushes down the side of the bowl. Water will continue to run into the bowl for a short time after the pedals are released.

When you wish to conserve water, hold the handspray head over the bowl and hold down the thumb-operated lever. Now, when you depress the pedal, all the water is routed through the handspray.

CAUTION: When you dump the bowl of the toilet, make sure all paper and solids have cleared the slide mechanism before you allow it to close. Failure to do so can cause the groove for the slide to become jammed, and the slide will no longer close completely.

If the problem should occur, a small nail or bent clothes hanger can be used to "pick" the material out of the groove.





## **ELECTRICAL SYSTEM**

#### 12 VOLT SYSTEM

## **BATTERIES**

Your motorhome is equipped with three batteries. One battery will be for the engine and the other batteries for the interior 12 volt circuits.

## **Engine Battery**

The engine batteries are used for starting the engine and operating the headlights, tail-lights, running lights, instrument panel lighting, automotive air conditioning and other accessories. The engine battery is charged by the alternator while driving and is located under the front hood.

#### **Coach Batteries**

The coach batteries are used for interior lighting, exhaust fans, generator, water pump, central control panel, entertainment center, optional 12-volt convenience outlets, and the refrigerator when it is switched to 12-volt power. These batteries are charged by the engine's alternator when driving, or by the converter when plugged into 120 volt city power. They are also charged by the generator, when it is running, through the 120 volt city power system. They are located just behind the engine cover.

#### **Auxiliary Battery Switch**

The switch marked aux, batt. on the galley end panel just inside the main door acts as a master switch. When turned off it opens the circuit between the coach batteries and the twelve volt distribution panel. The component that actually makes and breaks the circuit is a large continuous duty rated solenoid located in the front compartment next to the batteries.

The switch is not intended for everyday use. But if you're going to be away from your coach for more than 3 or 4 days and it's not plugged into 110 volt current just flip the switch off on the way out and your assured of fresh batteries when you return.

## **Interior Lights**

Many interior lights have been included in your motorhome to give you almost infinite variable light intensity.

Just inside the main door on the galley end panel are switches for the step, patio light and forward ceiling lights. The forward ceiling lights must have their switches on before the remote switch on the galley end panel will control them.

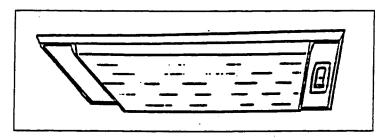
In the bathroom the water heater switch supplies power to the ignitor and gas valve. When turned on, it will flash red until flame is sensed, then the red light will be extinguished.

In the bathroom you'll also see a 110 volt switch for the water heater. This provides power to the heating element. **DO NOT** use unless you are sure the water heater is full. (Open a faucet and see if there is a full stream of water on the hot side).

The bulbs in the interior lights are all easily replaced if they burn out. Round, exposed bulbs, such as those around the bathroom mirror and reading lights, are replaced by depressing them into their base, then turning to the left about 1/4 turn. This will allow them to "pop" out part way, so they can be removed.

WARNING: If they are difficult to turn, use a folded rag to protect your hand when grasping the bulb in case it should unexpectedly shatter.

The ceiling and wardrobe light lenses are removed by squeezing the sides of the lens in until they clear the frame. In cold weather it is helpful to leave the light on for a while to soften the plastic and avoid cracking. Incandescent bulbs are removed by depressing



and turning to the left about 1/4 turn. Fluorescent bulbs are removed by turning in either direction.

## 12 Volt Operation

The switch just inside the door marked "aux. batt." or just "batt." is the main 12 volt kill switch. Anytime you are using the coach, leave this switch "on".

The only thing you have to do is make sure the coach batteries don't run down. In normal usage there isn't any problem, since you would normally drive part of the day and be plugged into a camp ground at night. The alternator charges the batteries when you drive and when you're plugged into city power the convertor charges the batteries and carries much of the load.

Some nights you may not find a place to plug into city power. No problem; the standard two battery system gives you about 210 amp-hours so you can comfortably run your lights and vents in a normal fashion without depleting the batteries.

If you are not plugged into city power and you're not driving, you'll want to conserve your batteries by using as few lights and appliances as possible. If you notice the lights becoming dim, it's much easier on the batteries if you go ahead and start the engine or generator before the batteries run down.

Your motorhome is equipped with a 5 watt solar panel. There is an indicator light to the left of the micro that is on when there is enough sunlight to have a charging condition.

There are two sets of 12 volt fuses and breakers in your motorhome. The main interior circuits are below the glove box behind the access panel. The brightly colored fuses pull straight out from the face of the panel. Replacement fuses are available at automotive stores and most service stations.

The second set of fuses are the ones provided by the chassis manufacturer. Ford fuses are located under the front hood under a black plastic cover.

Four in-line fuses are also used:

- · one at the isolator for the LP alarm
- a second at the engine battery for the solar panel
- the third is by the battery disconnect solenoid above the center of the exterior hood opening.
- the fourth fuse is a 30 amp fuse at the left side of the steering column and is for the heater blower motor.

#### **Basic 12V Wiring**

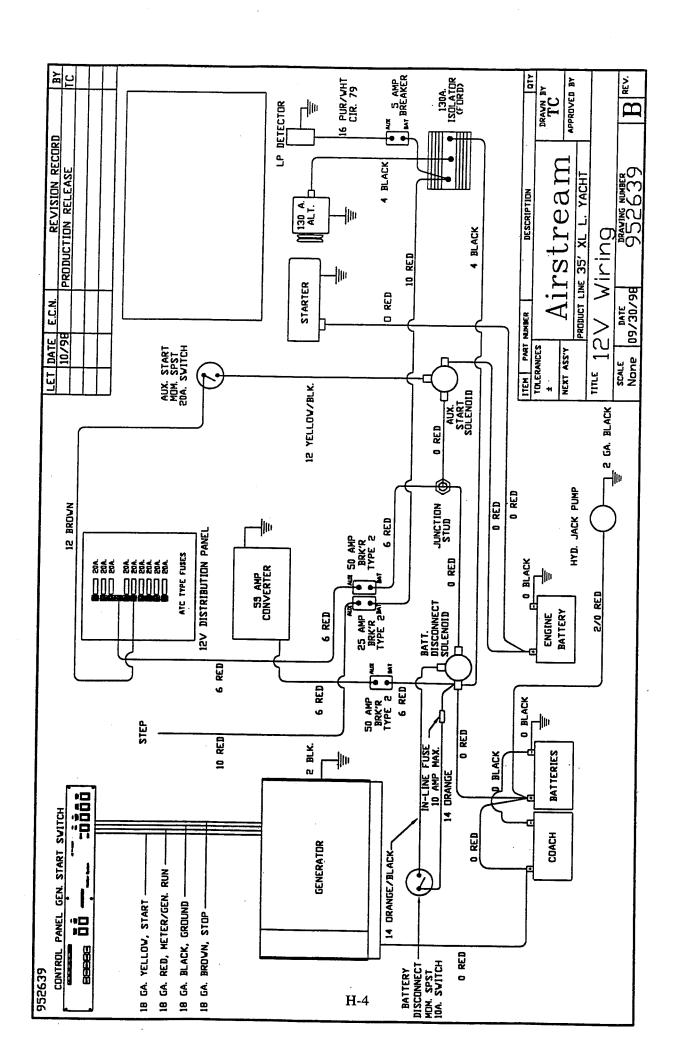
On the following sheet is a drawing of the 12-V wiring used in the XL motorhome.

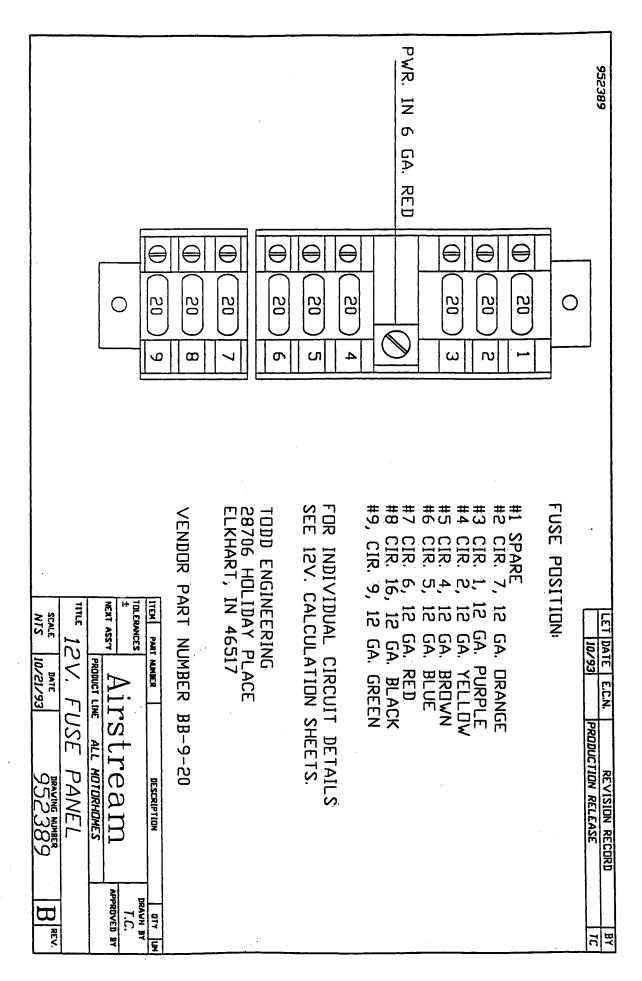
The auxiliary battery switch at the main door is intended to be used for long term storage. If you're not going to use your motorhome for a week or two, just leave the switch closed. If it's going to be more than a couple of weeks before using your coach, open the switch. This will assure your batteries will remain in the best condition possible. For long-term or winter storage, the batteries should be removed from the vehicle and stored where they can be recharged about every thirty days.

On the following pages are 12-volt wiring diagrams. The first drawing will probably be the most useful. It shows how the power from the batteries reaches the main components.

## 12V WIRING DIAGRAMS

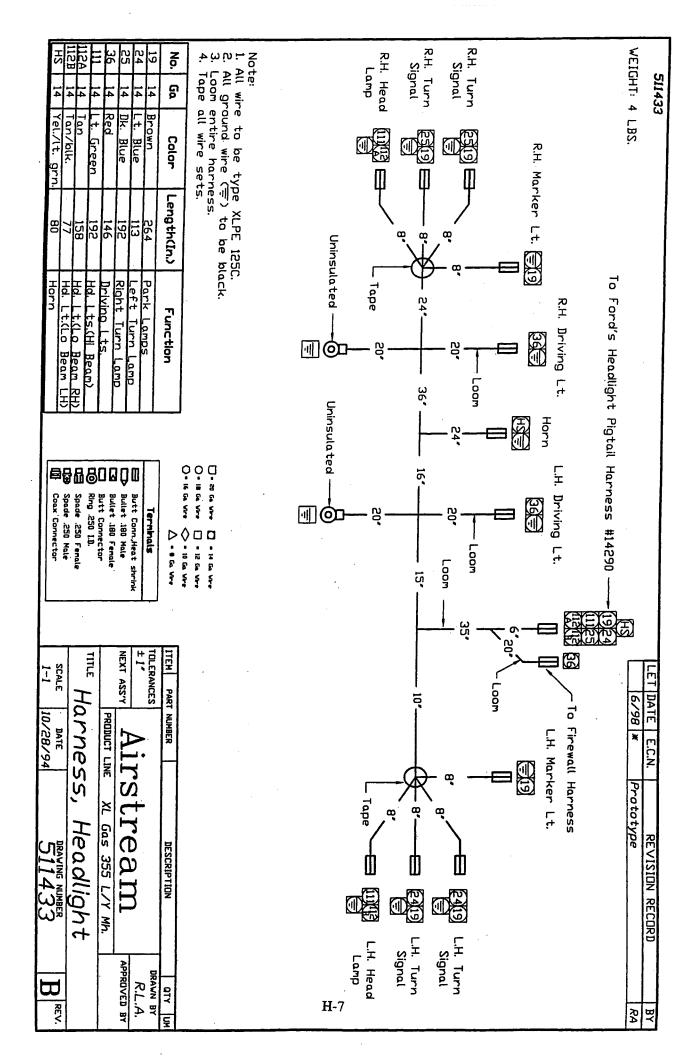
- 12 volt wiring main
- 12 volt fuse panel, Airstream
- 12 volt calculations
- · Harness, head lights
- · Harness, tail lights
- · Harness, armrest, part A
- · Harness, arm rest, part B
- · Harness, firewall
- · Harness, chassis components
- Harness, body, chassis, part A
- Harness, body, chassis, part B
- · Harness, body interior, part A
- Harness, body interior, part B
- Harness, body upper
- Harness, ceiling
- · Harness, bedroom slide-out
- Harness, clearance light rear
- Wiring, power mirrors
- Wiring, coaxial cable
- · Wiring, keyless entry

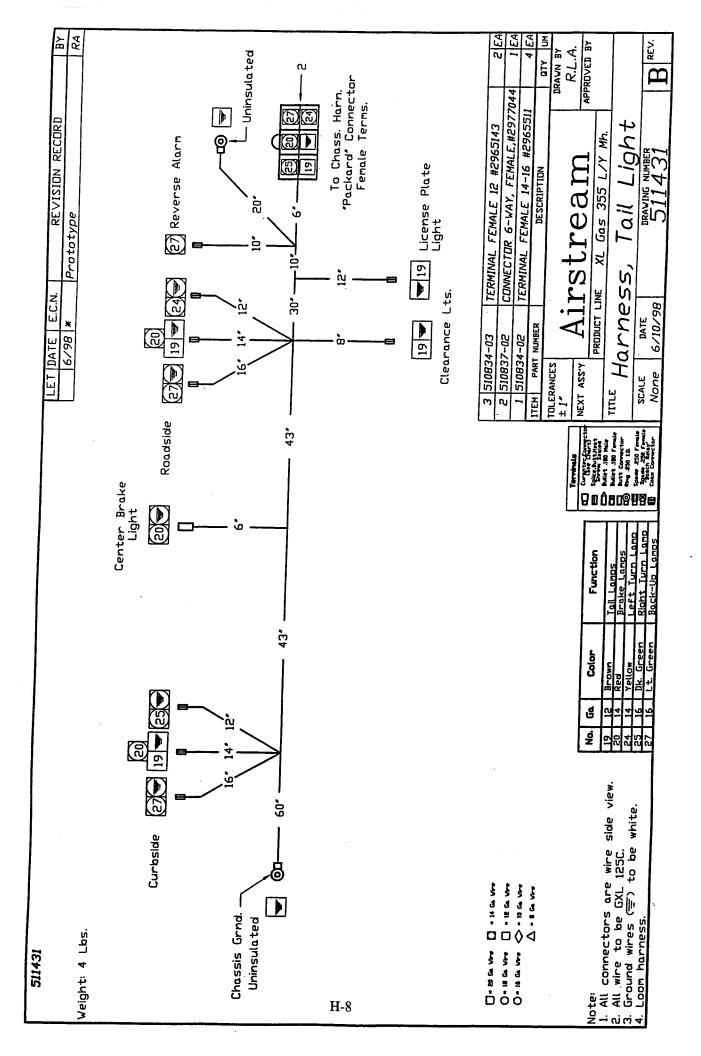


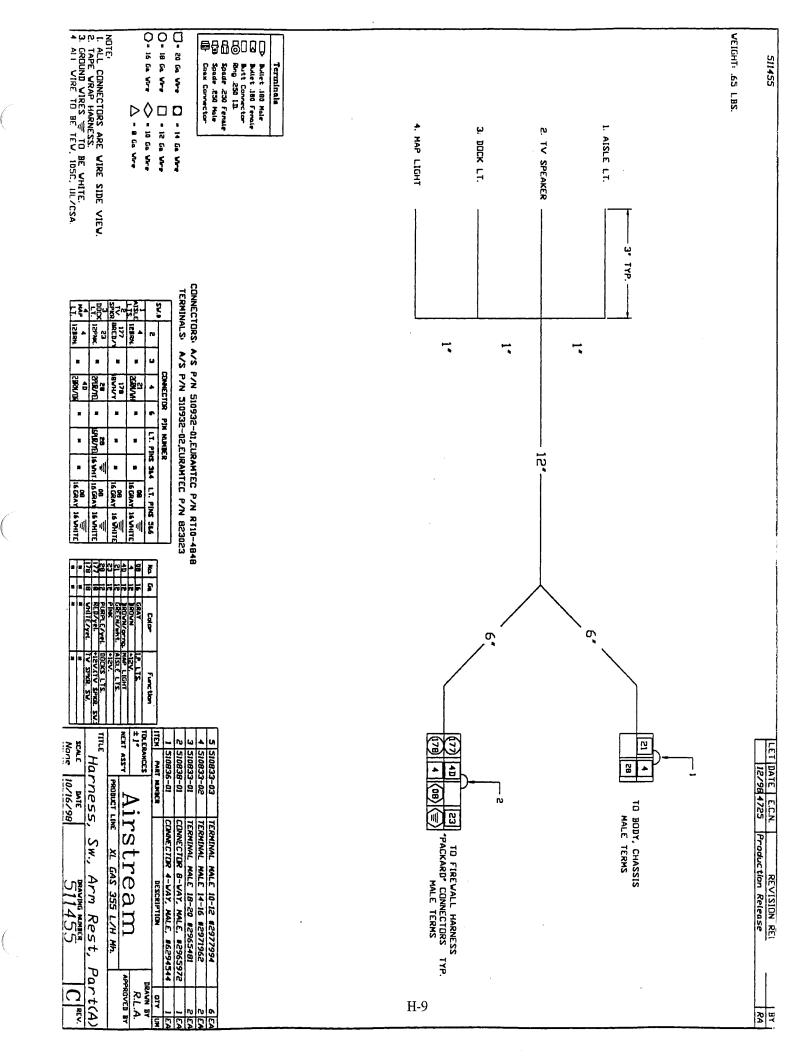


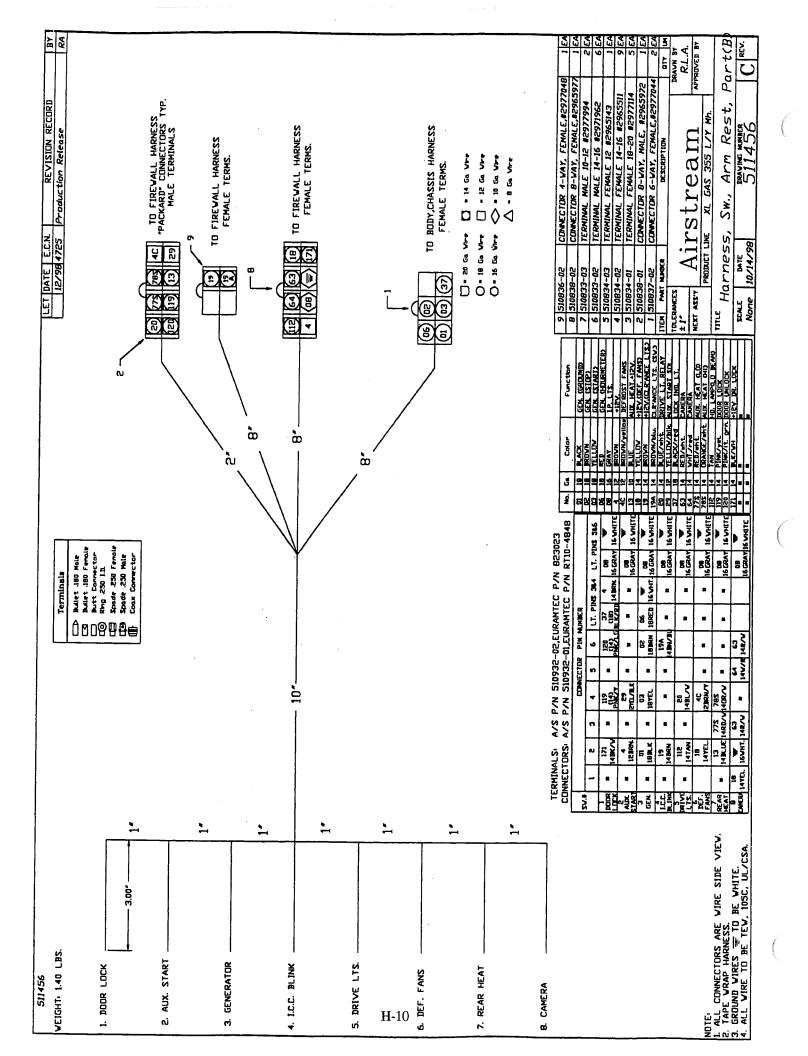
## 35' LAND YACHT XL 12V. CALCULATIONS

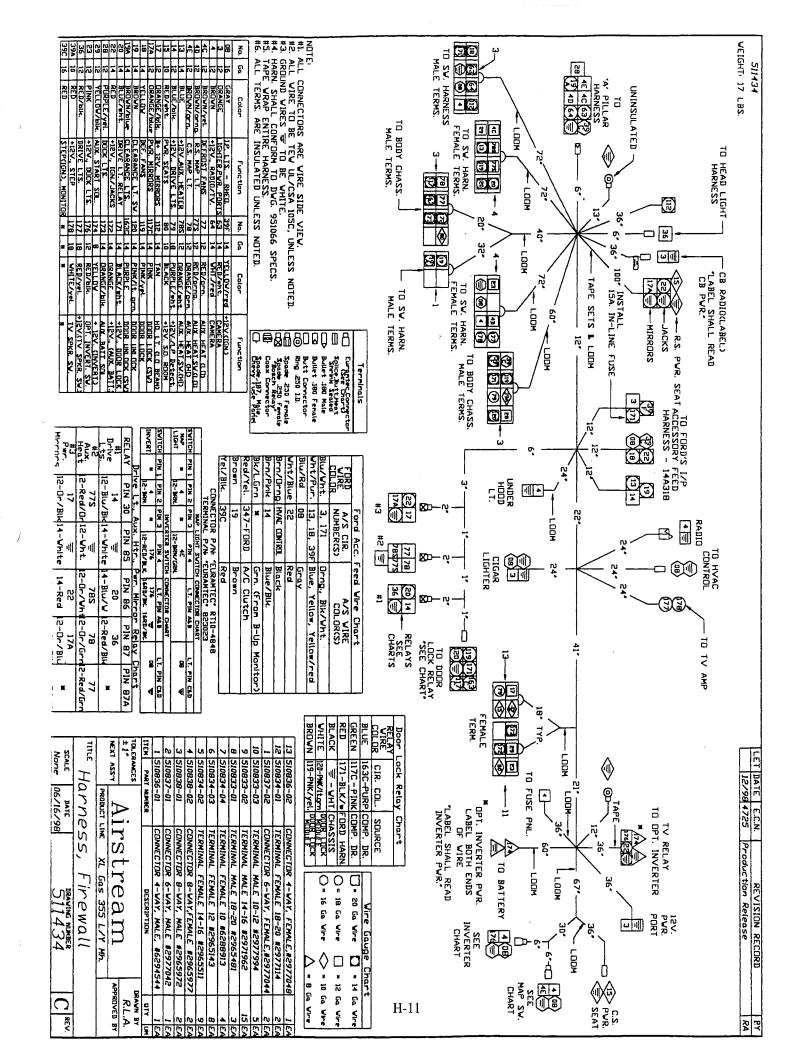
Circuit 1, 20 Amp., 12 Ga.	_		Circuit 6, 20 Amp., 12 Ga. F		
Bedroom Fantastic Fan	3.00	Amps.	(7) Compartment Lights 10.08 Amp		Amps.
(1) 2-Bulb Rear Wardrobe Lig					
Bedroom Fluor. Ceiling Ligh					
Hallway Exhaust Fan	2.00				
(2) 2-Bulb Wall Lamps	4.00		Circuit 7, 20 Amp., 12 Ga. C	Irango	
(2) Reading Lights	2.00		·		Amps.
1-Bulb Vanity Light	1.44		Refer Light	1.00	Amps.
Rear A/C Feed Wire	<u>1.00</u>		Circuit 8, Not Used		
Total	16.21	Amps.	Circuit 6, 110t Oscu		
Circuit 2, 20 Amp., 12 Ga.	Yellow		Circuit 9, 20 Amp., 12 Ga. G		
Bath Fluor, Light	1.33	Amps.	Oven Light	3.30	Amps.
Water Heater Electronic Igniti		F	Water Pump	7.00	
1-Bulb Shower Light	1.44		Galley Overhead Fluor, Light	<u>1.33</u>	
Bath Fan	2.00		Total	9.33	Amps.
Furnace	9.80				
Total	15.57	Amps.	Circuit 16, 20 Amp., 12 Ga. 1		
		I	Step Light	1.00	Amps.
Circuit 3, Not Used			Patio Light	1.00	
			(5) Ceiling Fluorescent Lts.	<u>6.65</u>	
Circuit 4, 20 Amp., 12 Ga. 1	<u>Brown</u>		Total	8.65	Amps.
Circuit 4, 20 Amp., 12 Ga. 1 (3) Aisle Lights	Brown 1.20	Amps	Total	8.65	Amps.
		Amps			Amps.
(3) Aisle Lights	1.20	Amps	Battery Charger 3.00 A		Amps.
(3) Aisle Lights Underhood Light	1.20 1.44 5.00	Amps	Battery Charger 3.00 A	Amps.	Amps.
(3) Aisle Lights Underhood Light Radio	1.20 1.44 5.00 t 1.44	Amps		Amps.	Amps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light	1.20 1.44 5.00 t 1.44	Amps	Battery Charger 3.00 A Total Amp. Draw 95.08 A	Amps. Amps.	•
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light	1.20 1.44 5.00 t 1.44 1.44		Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2	Amps. Amps. 20.00 An	nps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier	1.20 1.44 5.00 t 1.44 5.00	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2 2nd. 20 Amps. @ 50% = 1	Amps. Amps. 20.00 An 10.00 An	nps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier	1.20 1.44 5.00 t 1.44 5.00 15.52		Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1	Amps. Amps. 20.00 An 10.00 An 13.77 An	nps. aps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total	1.20 1.44 5.00 t 1.44 5.00 15.52		Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1	Amps. Amps. 20.00 An 10.00 An	nps. aps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. H (2) 1-Bulb R.S. Front Locker Lights	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue		Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4	Amps. Amps. 20.00 An 10.00 An 13.77 An 43.77 An	nps. nps. nps. nps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. E (2) 1-Bulb R.S. Front	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4  43.77 Power converter required	Amps.  20.00 An  10.00 An  13.77 An  43.77 An	nps. nps. nps. nps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. H (2) 1-Bulb R.S. Front Locker Lights	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4	Amps.  20.00 An  10.00 An  13.77 An  43.77 An	nps. nps. nps. nps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. H (2) 1-Bulb R.S. Front Locker Lights 1-Bulb C.S. FrontLocker Light	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue 1.44 t 1.44	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4  43.77 Power converter required Magnetek 7455, 55 amp. converter	Amps.  20.00 Am  10.00 Am  13.77 Am  13.77 Am  by calcutter used	nps. nps. nps. nps.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. H (2) 1-Bulb R.S. Front Locker Lights 1-Bulb C.S. FrontLocker Light 2-Bulb R.S. Wall Lamp	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue 1.44 t 1.44 2.00	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4  43.77 Power converter required Magnetek 7455, 55 amp. converted Ma	Amps.  20.00 Am  10.00 Am  13.77 Am  13.77 Am  by calcurter used	nps. nps. nps. nps. nlation.
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. H (2) 1-Bulb R.S. Front Locker Lights 1-Bulb C.S. FrontLocker Light 2-Bulb R.S. Wall Lamp 3-Bulb Dinette Light	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue 1.44 t 1.44 2.00 3.40	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4  43.77 Power converter required Magnetek 7455, 55 amp. converted Ma	Amps.  20.00 An  10.00 An  13.77 An  43.77 An  by calcurter used  the  Nec 551	nps. nps. nps. nps. nps. 10 (e).
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. H (2) 1-Bulb R.S. Front Locker Lights 1-Bulb C.S. FrontLocker Light 2-Bulb R.S. Wall Lamp 3-Bulb Dinette Light Fantastic Fan	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue 1.44 t 1.44 2.00 3.40 3.00	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4  43.77 Power converter required Magnetek 7455, 55 amp. converted Magnetek 7455, 55 amp. converted Magnetek 7455, 35 amp. converted Ma	Amps.  20.00 And 10.00 And 13.77 And 13.77 And 15.77 And	nps. nps. nps. nps. nlation
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. H (2) 1-Bulb R.S. Front Locker Lights 1-Bulb C.S. FrontLocker Light 2-Bulb R.S. Wall Lamp 3-Bulb Dinette Light Fantastic Fan 12 V. Booster	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue 1.44 t 1.44 2.00 3.40 3.00 0.00	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4  43.77 Power converter required Magnetek 7455, 55 amp. converted Ma	Amps.  20.00 And 10.00 And 13.77 And 13.77 And 15.77 And	nps. nps. nps. nps. nlation
(3) Aisle Lights Underhood Light Radio Generator Compartment Light Plumbing Compartment Light Speaker Amplifier Total  Circuit 5, 20 Amp., 12 Ga. F (2) 1-Bulb R.S. Front Locker Lights 1-Bulb C.S. FrontLocker Light 2-Bulb R.S. Wall Lamp 3-Bulb Dinette Light Fantastic Fan 12V. Booster (2) 2-Bulb Wall Lamps	1.20 1.44 5.00 t 1.44 5.00 15.52 Blue 1.44 t 1.44 2.00 3.40 3.00 0.00 2.00	Amps.	Battery Charger 3.00 A  Total Amp. Draw 95.08 A  1st. 20 Amps. @ 100% = 2  2nd. 20 Amps. @ 50% = 1  53.64 Amps. @ 25% = 1  Total 4  43.77 Power converter required Magnetek 7455, 55 amp. converted Magnetek 7455, 55 amp. converted Magnetek 7455, 35 amp. converted Ma	Amps.  20.00 And 10.00 And 13.77 And 13.77 And 15.77 And	nps. nps. nps. nps. nlation

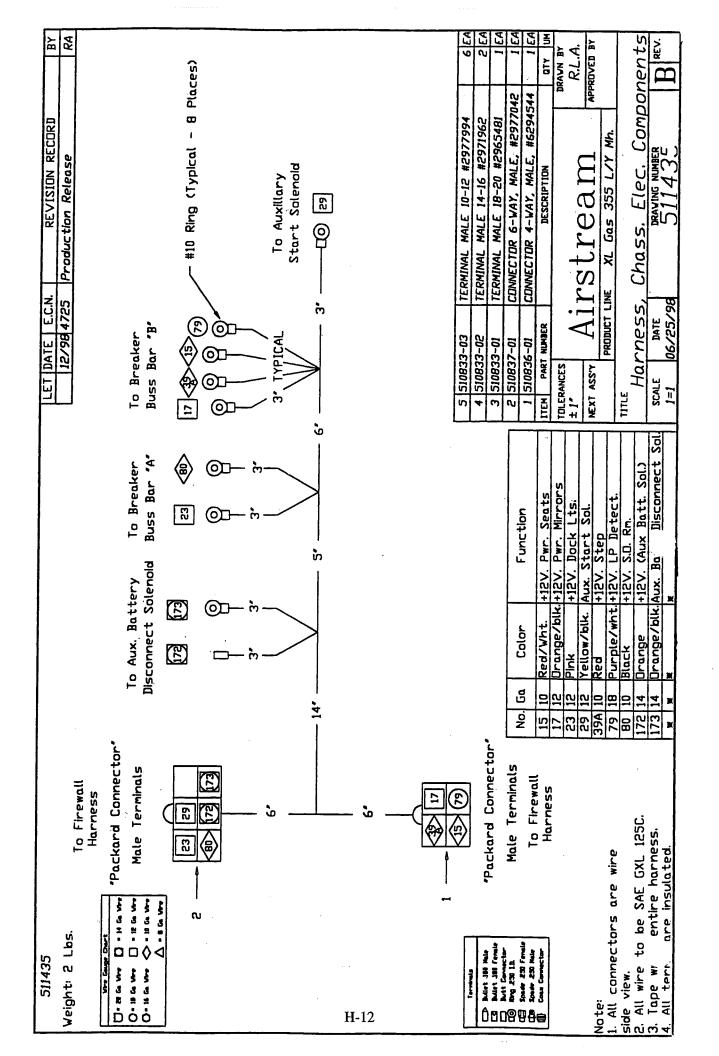


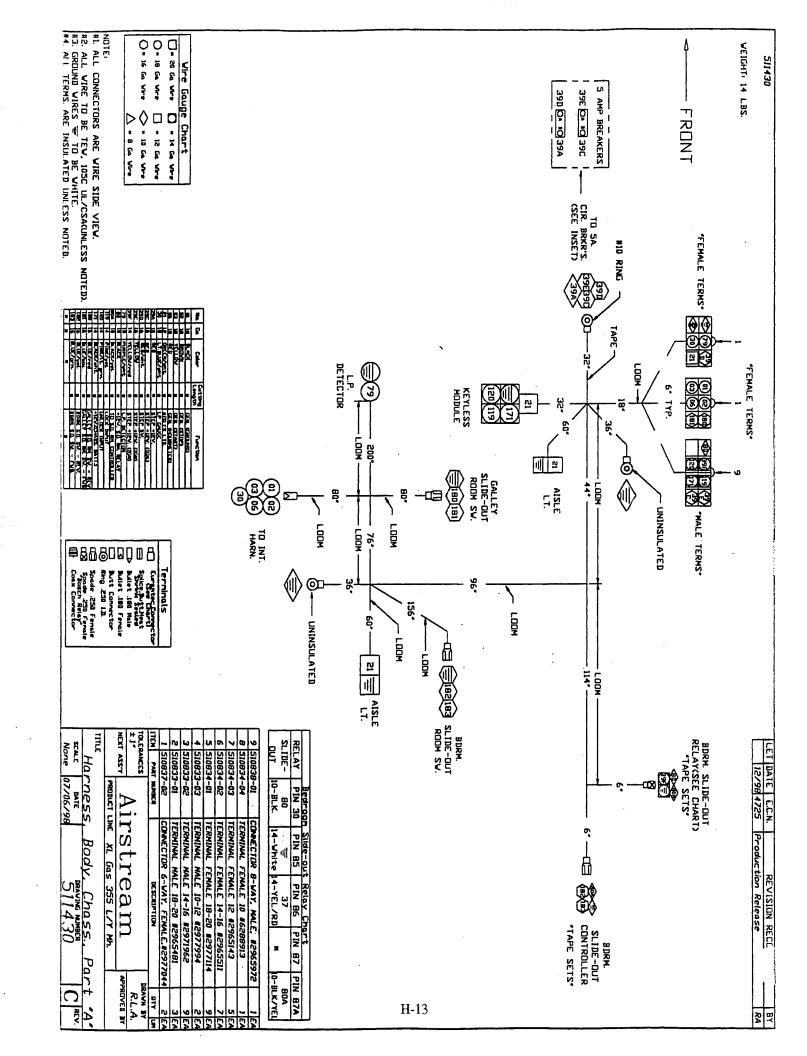


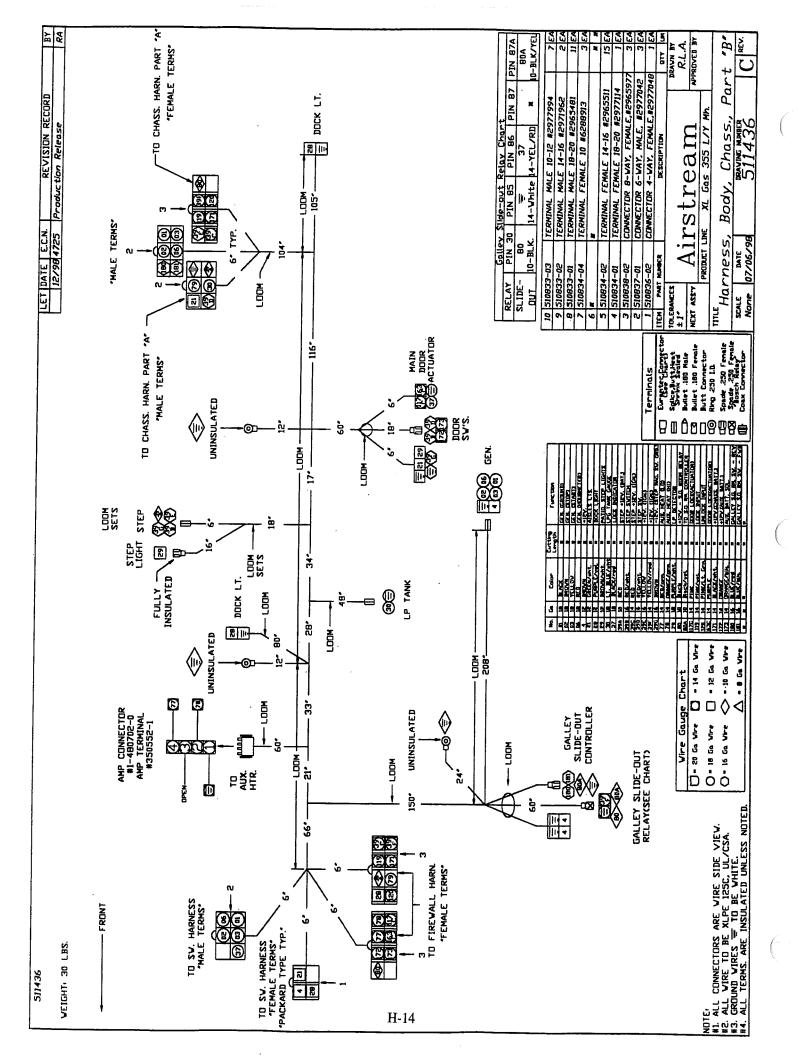


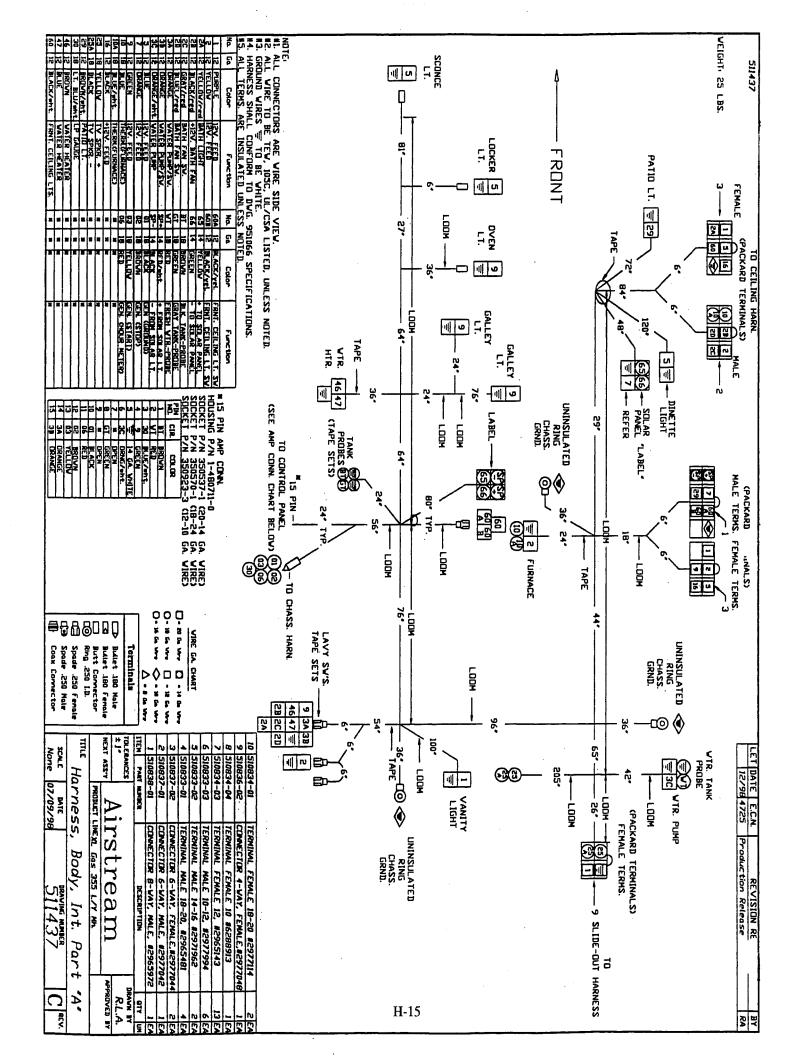


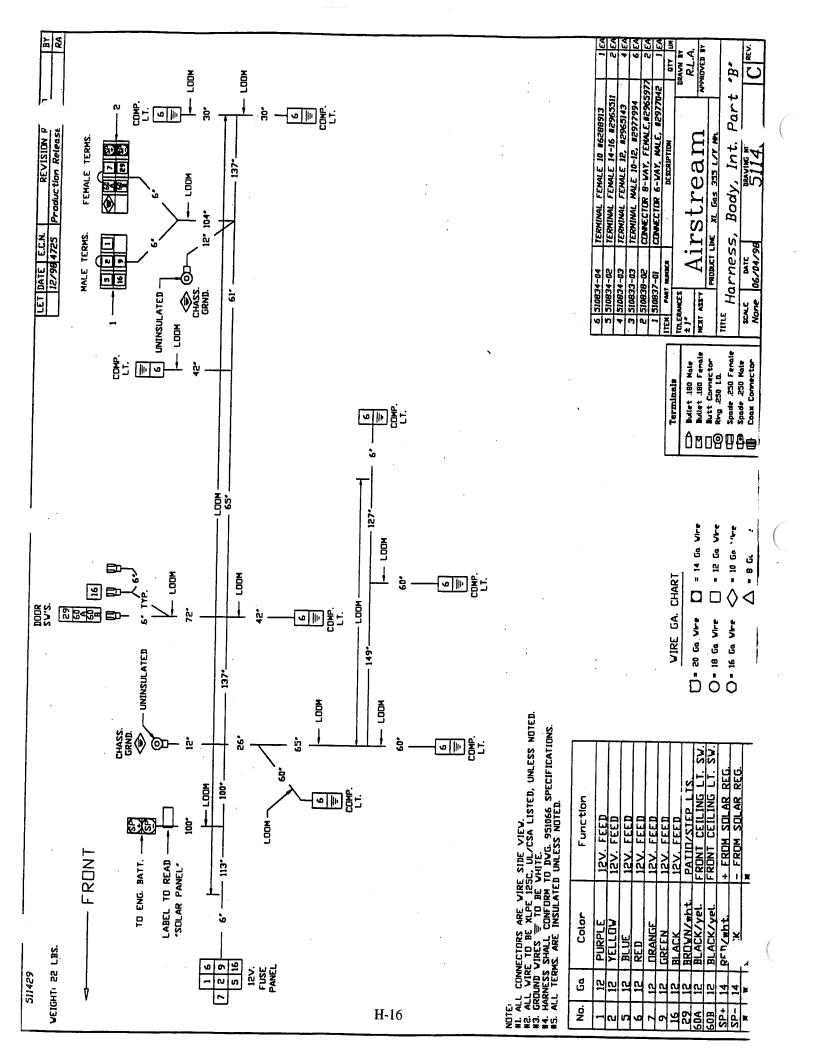


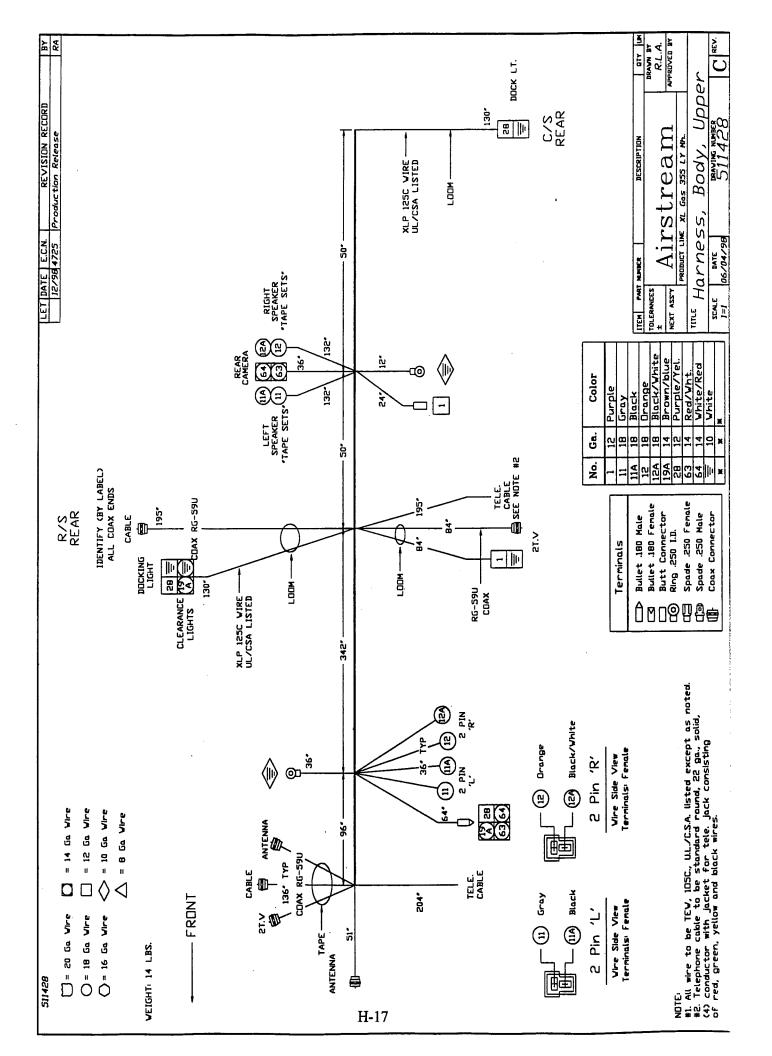


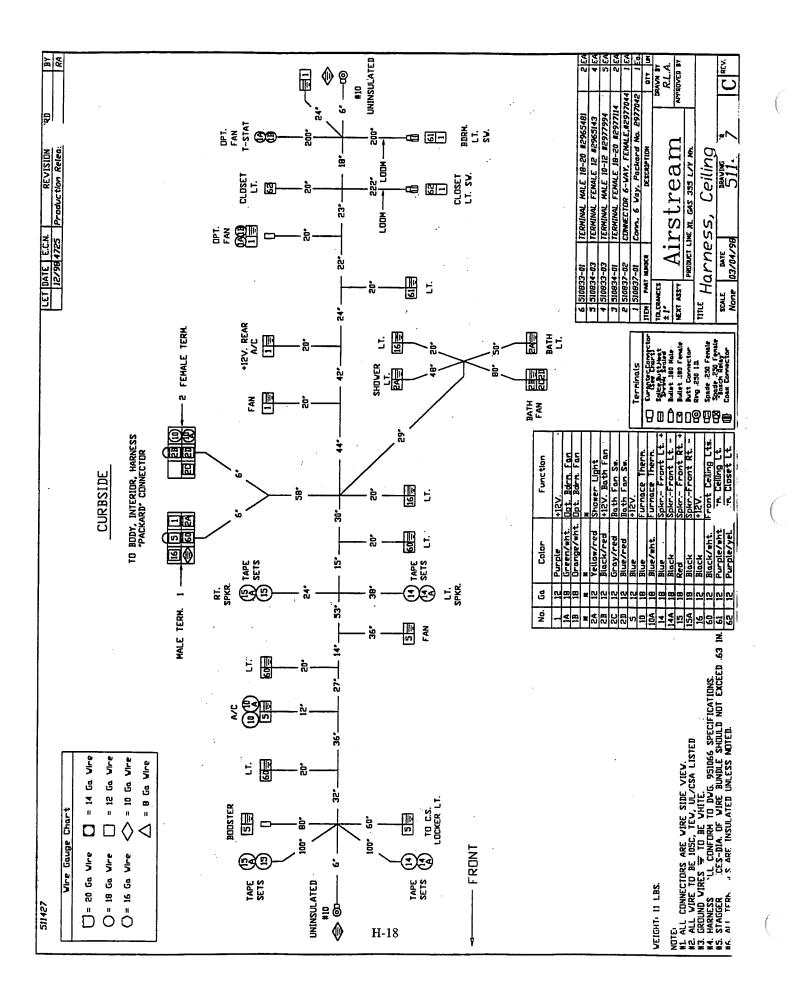


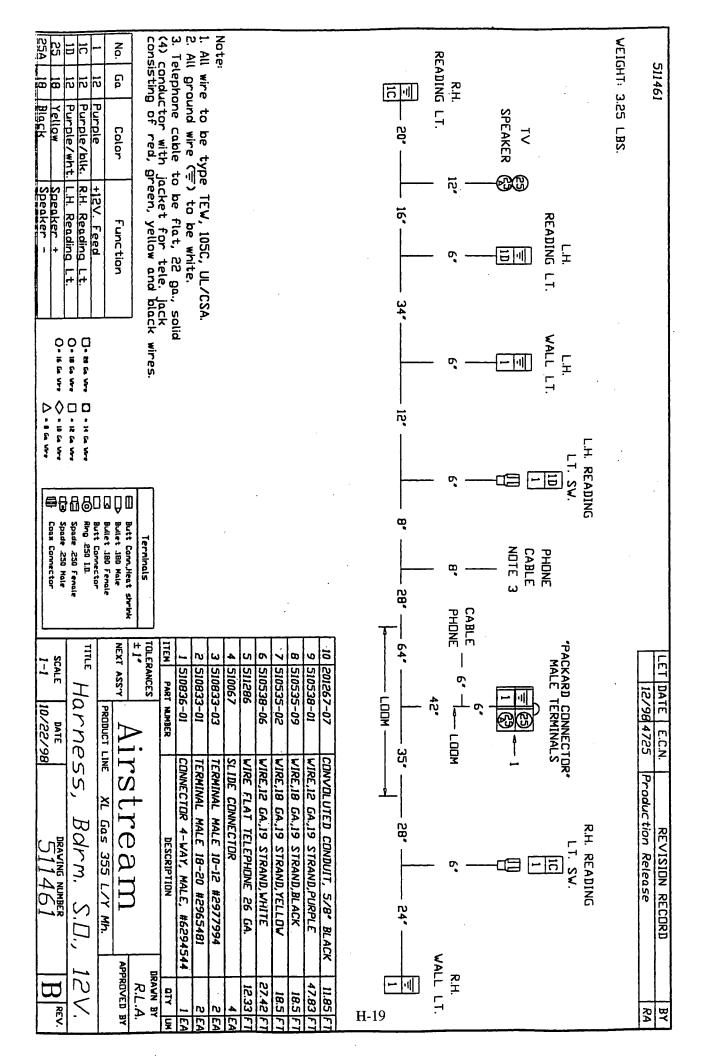


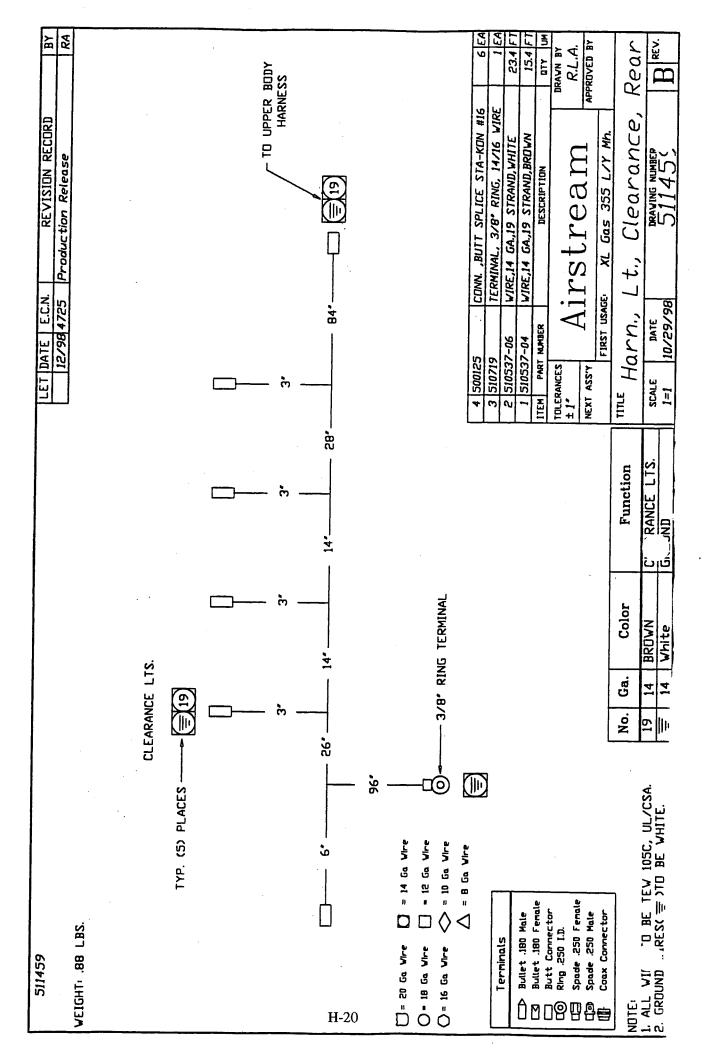


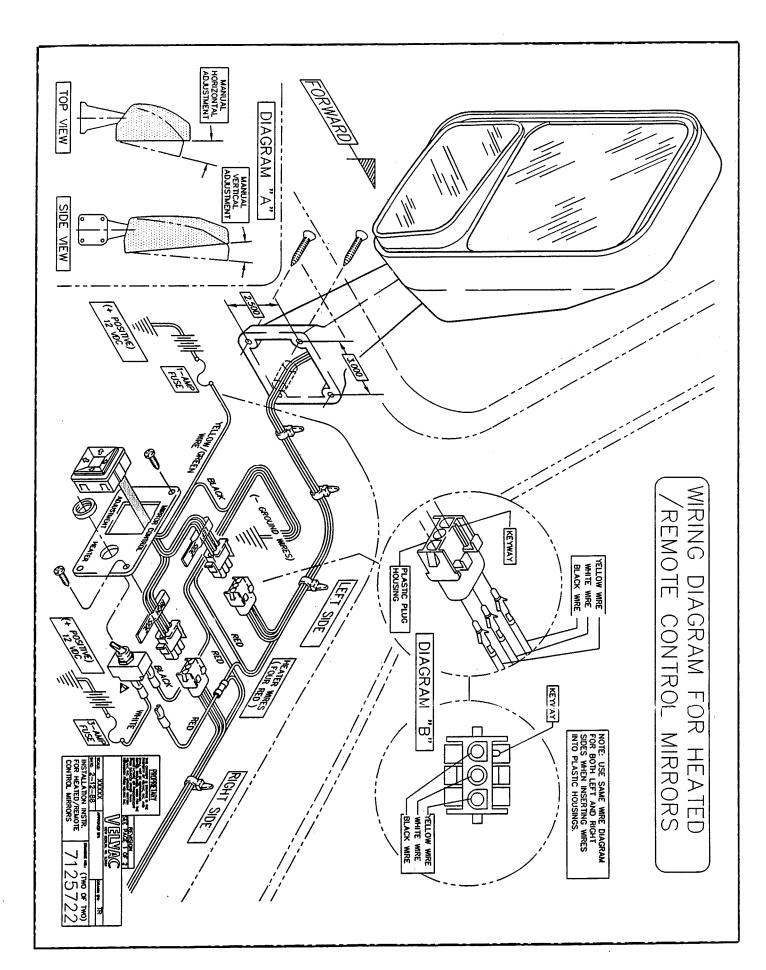


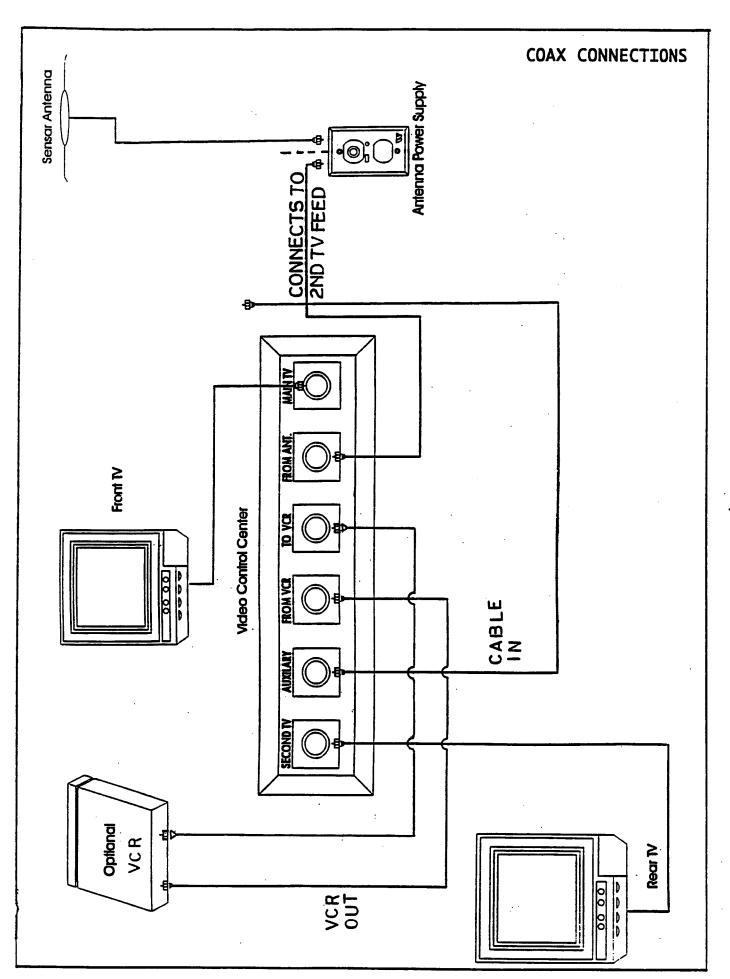


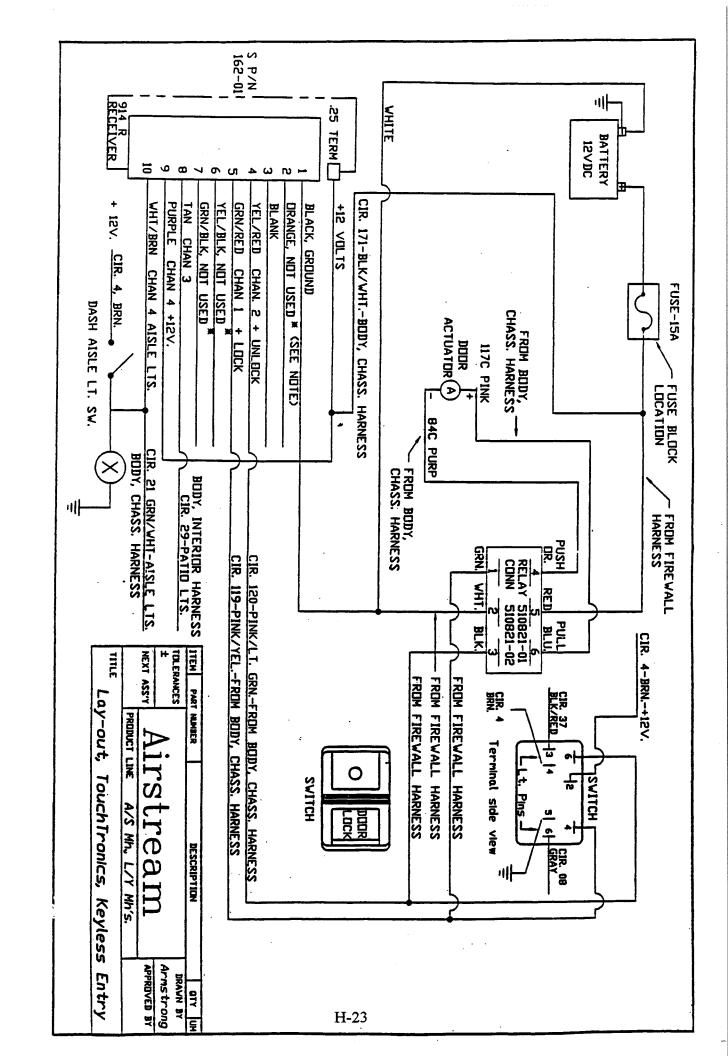












#### TV ANTENNA

Manufacturer:

Winegard Company 3000 Kirkwood Street Burlington, Iowa 52601 Phone: 800-843-4741

## Raising Antenna to Operating Position

Turn elevating crank in "UP" direction until some resistance to turning is noted. Antenna is now in operating position. Check to make sure switch on front TV jack is on.

## **Rotating Antenna**

Make sure antenna is in "UP" position. Pull down on directional handle with both hands until it disengages ceiling plate and rotate for best picture and sound on television set.

## **Lowering Antenna to Travel Position**

Rotate antenna until pointer on directional handle aligns with pointer on ceiling plate.

WARNING: Antenna must be in "down" position while traveling to prevent damage.

Turn elevating crank in the "Down" direction until resistance is noted. Antenna is now locked in travel position.

## **Checking Operation**

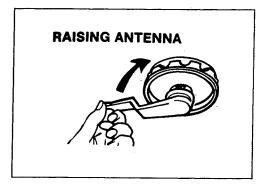
- Tune TV receiver to nearest station and rotate antenna for lowering Antenna best picture and sound.
- 2. Turn off switch on power supply. Picture on TV receiver should be considerably degraded with power off.

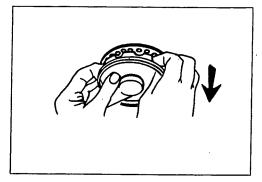
## DO'S

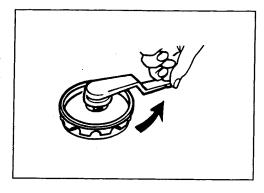
- 1. Do check parking location for obstructions before raising antenna.
- 2. Do carefully raise, lower and rotate if difficult, check for cause.
- 3. Do rotate slowly when selecting station and check fine tuning on TV set to make sure it is properly adjusted.
- 4. Do lower antenna before moving vehicle.

## DON'TS

- 1. Don't force elevating crank up or down. Check for cause of trouble.
- 2. Don't rotate directional handle hard against stops.
- 3. Don't travel with lift in up position.
- 4. Don't leave lift part way up or down.
- 5. Don't apply sealing compound or paint over top of base plate or anywhere on lift.

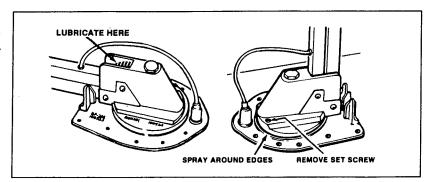






#### **Maintenance Lubrication**

To lubricate the elevating gear apply a liberal amount of silicone spray lubricant to the elevating gear with the lift in the down position, then run the lift up and down a few times to distribute lubricant over gears.



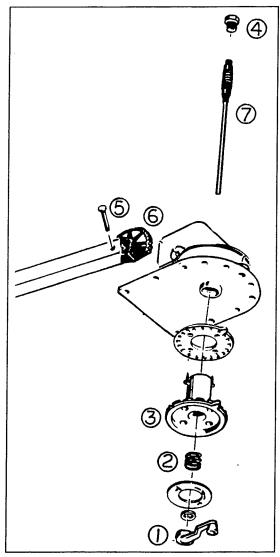
## **Lubricating Rotating Gear Housing**

In the event that rotating the antenna becomes difficult, normal operation can be restored by lubricating the bearing surface between the rotating gear housing and the base plate. Any spray type silicone lubricant may be used.

Elevate antenna and remove set screw from rotating gear housing as shown. Spray lubricant into hole and around edges of gear housing. Rotate gear housing until lubricant coats bearing surfaces and antenna rotates freely.

# **Elevating Shaft Worm Gear Assembly Replacement Procedure**

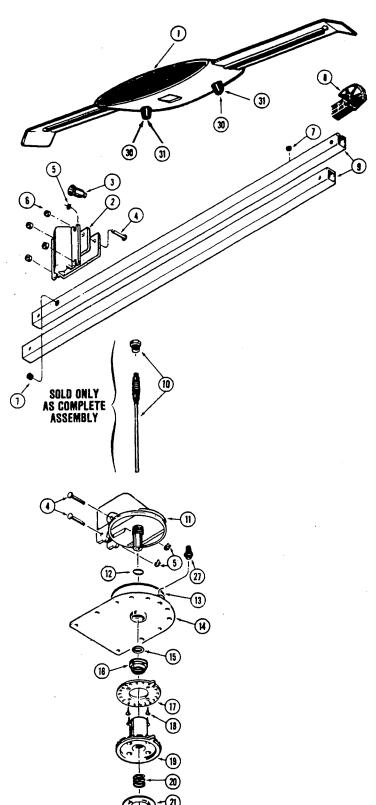
- STEP 1: Lower antenna to travel position and refer to drawing to identify parts indicated in steps below.
- STEP 2: Loosen set screw on elevating crank (#1) and remove crank (#1), spring (#2), directional handle (#3).
- STEP 3: Go to roof of vehicle and Qs remove retaining ring from pin (#5) holding top elevator tube in rotating gear housing and remove pin.
- STEP 4: Remove bearing plug (#4) from top of rotating gear housing. Disengage elevating gear (#6) and remove elevating shaft assembly (#7).
- Note: Make sure all parts below worm gear are removed from rotating gear housing. These include bearing, quad ring and one or two washers.



- STEP 5: Cut new shaft 1/4" longer than old shaft. See Illus: Discard old bearing plug item (#4).
- STEP 6: Lubricate worm gear on new elevating shaft assembly with spray silicone lubricant, make sure quad ring, washer and wave washer are on lower bearing and insert assembly in housing.
- STEP 7: Install new plastic bearing plug in top of housing. Re-engage elevating gear in worm gear. Replace pin and retaining ring.
- **STEP 8**: Replace directional handle, spring and elevating crank. Make sure set screw contacts flat on shaft before tightening.

## PARTS DESCRIPTION

- 1. Antenna Head
- 2. LM-300 Leveling Mount
- 3. Boot, Coax Cable
- 4. Pin, Headed/Grooved
- 5. Ring, Retaining Snap
- 6. Spacer, Plastic
- 7. Grommet, Plastic
- 8. EG-87 Elevating Gear
- 9. Tube, Square Elevator
- 10. Elevating Shaft Assy
- 11. Housing, Rotating Gear
- 12. Ring, Quad Seal
- 13. Bearing, Nylon
- 14. Housing, Base Plate
- 15. Bearing, Nylon
- 17. Plate, Ceiling
- 18. Screw
- 19. Handle, Directional
- 20. Spring, Handle
- 21. Decal, Crank Cover
- 22. Bearing, Nylon
- 23. Elevating Crank/Set Screw
- 27. Boot, Gear Housing
- 30. Bumper, Rubber
- 31. Screw



#### **SOLAR POWER**

The 5 watt solar power system primarily functions as a battery maintainer. Memory functions in radios, locks and many circuit boards each draw power in the milliamp range. If a charge source is not available, even these miniscule power drains will run batteries down in seven to twelve days unless the "kill" switch is turned off. Barring an unusual number of cloudy days the 5 watt system will prevent battery discharge even with the kill switch on.

#### 110 VOLT POWER

The 110-volt system works very much like your home. The circuit breakers, located behind access door in the foot of the rear bed, then supply the power to the receptacles and appliances.

If a circuit is over loaded or a short circuit occurs, the breakers will "kick" out. To reactivate the circuits, turn the breaker to off, reduce the load or correct the short, and turn the breaker back to on.

One of the breakers is a GFI (Ground Fault Interrupter) breaker. The intent of this breaker is to sense any loss of ground before a harmful shock could occur, and kick the breaker out. These sensitive breakers are installed in the circuit feeding the bathroom, outside receptacle, and galley area. These are the areas where the use of water or the wet ground could put a person in danger of shock. Since the GFI breaker is so sensitive, it is not unusual to have it kick out for no apparent reason.

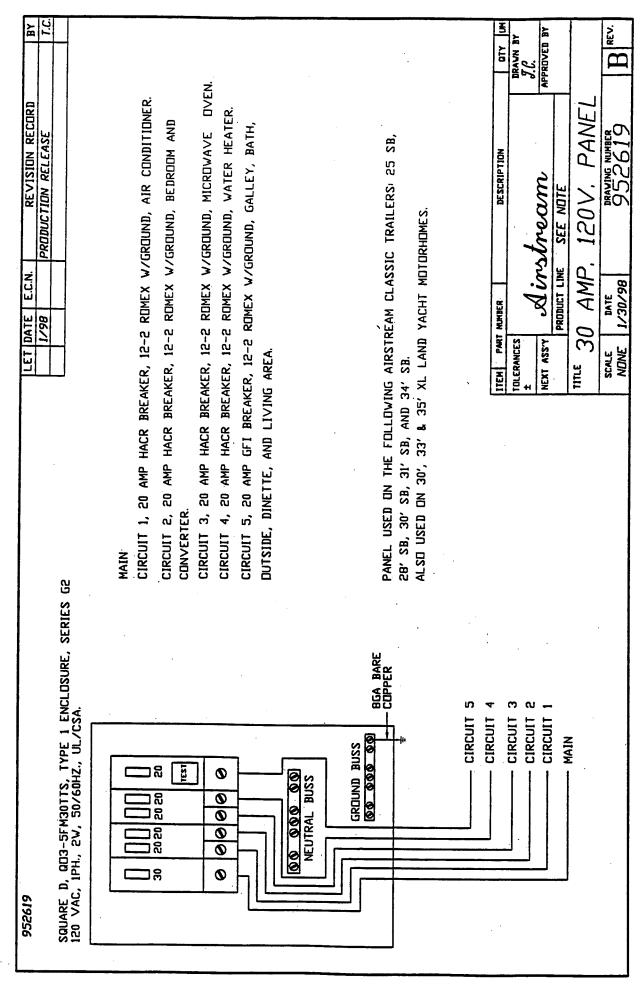
#### **GENERATOR**

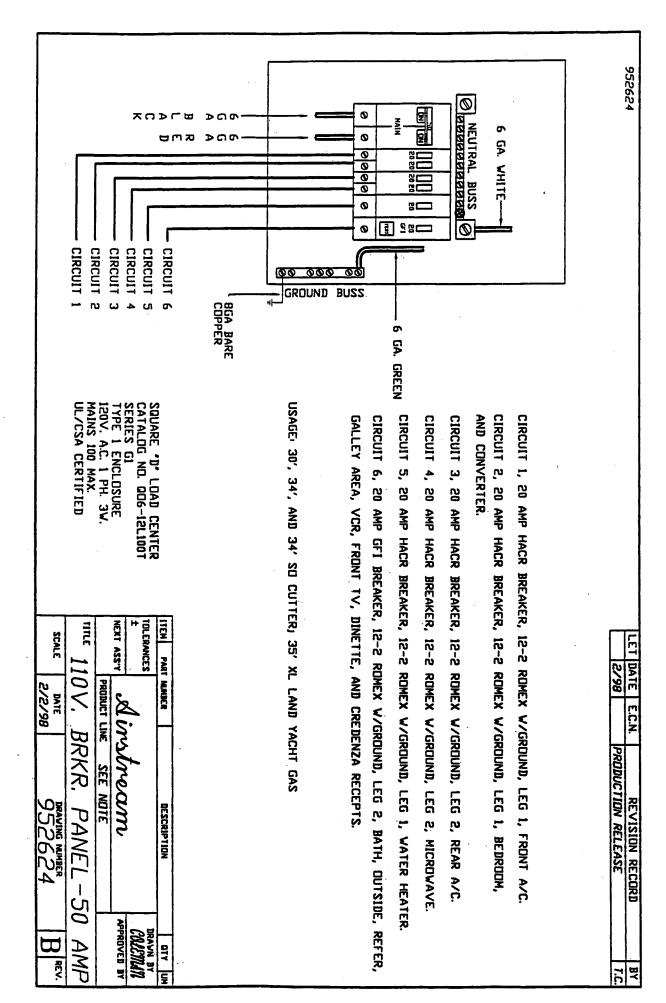
Using the generator is very much like plugging into an external power source. When you start the generator there is a built in delay of about 20-30 seconds before the circuits are switched and all the 110 volt power to your coach is being provided by the generator.

The electrical device that has the delay and switching feature is called the generator switch over relay. The time delay feature allows the generator to reach full operation before it takes the "load". The switching device has two sets of points. It's normally closed so city power coming in goes through the switch and on to the main circuit breakers. When the generator is started and the delay feature is satisfied the switching device goes to the second set of points. This cuts the contact between the city power and the breaker box and makes the contact between the generator and the breaker box.

Service access: Directly above the generator is a shelf on which the 110 volt power cord is stored. This shelf is easily removed by taking out four bolts. This allows access to the generators rear spark plug.

NOTE: The generator manufacturer provides an operators manual that should be reviewed prior to use.





#### LOCATING SHORTS AND OPENS

The key in locating shorts and opens is isolation. The first step is to isolate the circuit with the short or open. The second step is to then isolate the section of the circuit with the fault. Once the section is identified, the specific problem can be located. The cause may be a loose or corroded connection, cut wire, worn insulation, defective component, etc. The following procedure is one method for isolating shorts and opens.

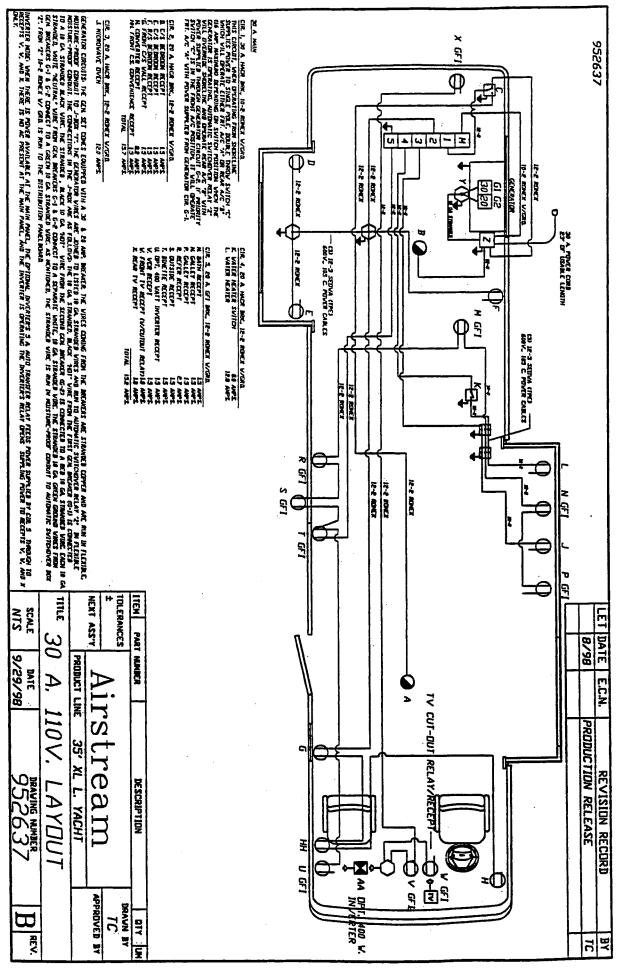
#### **SHORTS**

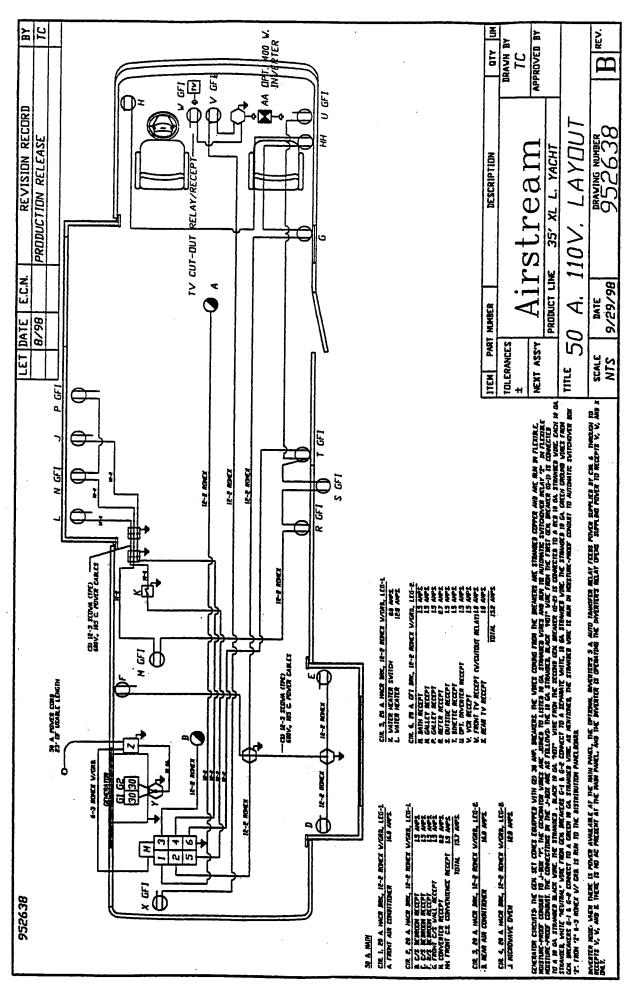
- 1. Isolate the circuit which has the short by noting which circuit breaker has tripped.
- 2. Disconnect the power inlet cord from the power source.
- 3. Using the 120V schematic as a reference, disconnect outlet boxes one at a time starting at the box furthest from the distribution panel. After disconnecting each box, check for continuity between the black wire and ground or common (white) wire on the distribution panel side of the circuit. When a continuity light or ohmmeter indicates no continuity, the short is either in the receptacle just removed or the section of Romex wire between this receptacle and the previous receptacle removed.
- 4. Examples of a short are: A) The black wire of the 120V system contacting the white wire, bare wire or grounded surface. B) An internal short in a 1 20V appliance.

Any damaged wire must be replaced. The National Electrical Code does not permit splicing 120V wiring outside an outlet box or junction box. Also, the wire must not be exposed to an area such as a sharp metal edge which may damage the wire.

#### **OPENS**

- 1. Check all receptacles and components for voltage on the circuit which has the open,
- 2. If all receptacles and components of the circuit are without power, begin to look for open in the distribution panel.
- 3. Inspect for loose or corroded connections and a faulty circuit breaker,
- 4. Check for power on both ends of circuit breaker. If there is no power on the inlet side of the circuit breaker, the open is between the power cord's male connector and the distribution panel.
- 5. The open can be isolated by noting the outlets which do not have power. Example: If the bath outlet in the rear bath model has power and the converter has no power, the open is between the bath outlet and converter outlet.
- 6. Examples of an open are: A) Loose or corroded connections. B) A wire disconnected from a terminal. C) Contacts in the circuit breaker which do not make contact. D) A broken wire.





#### **APPLIANCES**

#### AIR CONDITIONER

Manufacturer:

Dometic Sales Corporation 2320 Industrial Parkway

P.O. Box 490 Elkhart, IN 46515 Phone: 219-295-5228

Note: Review the air conditioning literature supplied in your Owner's Packet before proceeding.

The roof air conditioner used on Airstream motorhomes is one of the most popular on the market today. In your Owner's Packet is a set of literature covering all operating and maintenance instructions. If the literature is misplaced, please contact the air conditioner manufacturer or your Airstream dealer for replacement. A detailed service guide may be ordered from the manufacturer.

The voltage to the air conditioner is critical. We commonly refer to 110 or 120 volts, but a check with a volt meter may find voltage much lower. Your air conditioner will probably not function if the current drops below 105 volts. Low voltage is usually associated with older or poorly maintained trailer parks, but many people have found their homes, built only twenty or thirty years ago, may not be capable of operating the air conditioner on some receptacles. Parking your motorhome so the power cord can be plugged into a receptacle close to the fuse or circuit breaker box can alleviate the problem. Avoid extension cords and adapters whenever possible. If an extension cord must be used, it should be as short and heavy as possible to provide the most current to the air conditioner.

If high temperatures are expected, you should make an effort to park in a shaded area. Starting the air conditioner early in the morning also helps. It is much easier to hold a comfortable temperature than it is to lower the temperature after the interior of the motorhome is already hot.

#### **FURNACE**

Manufacturer:

Hydro Flame Corporation 1874 South Pioneer Road Salt Lake City, UT 84104 Phone: 801-972-4621

The manufacturer of the furnace in your motorhome has been well known in the RV industry for many years. The furnace burns LP gas, and is powered by 12 volt current from the battery or power converter when plugged into city power. Operating instructions are located in your Owners Packet. If they should become misplaced new literature can be ordered direct from the manufacturer or your Airstream dealer. The manufacturer also offers a detailed service guide for your furnace.

WARNING: Carefully read all the manufacturer's instructions prior to operating. NEVER store flammable material next to the furnace.

If warranty service is required use only a service location recommended by the furnace manufacturer or your Airstream dealer.

#### REFRIGERATOR

Manufacturer:

The Dometic Corporation

509 South Poplar St. LaGrange, IN 46761 Phone: 219-463-4850

In an absorption refrigerator system, ammonia is liquefied in the finned condenser coil at the top rear of the refrigerator. The liquid ammonia then flows into the evaporator (inside the freezer section) and is exposed to a circulating flow of hydrogen gas, which causes the ammonia to evaporate, creating a cold condition in the freezer.

The tubing in the evaporator section is specifically sloped to provide a continuous movement of liquid ammonia, flowing downward by gravity through this section. If the refrigerator is operated when it is not level and the vehicle is not moving, liquid ammonia will accumulate in sections of the evaporator tubing. This will slow the circulation of hydrogen and ammonia gas, or in severe cases, completely block it, resulting in a loss of cooling.

Any time the vehicle is parked for several hours with the refrigerator operating, the vehicle should be leveled to prevent this loss of cooling. The vehicle needs to be leveled only so it is comfortable to live in (no noticeable sloping of floor or walls).

When the vehicle is moving, the leveling is not critical as the rolling and pitching movement of the vehicle will pass to either side of level - keeping the liquid ammonia from accumulating in the evaporator tubing.

## **OPERATION**

The refrigerator requires 12 volt current to operate even if running on LP or 110 volt modes. The 12 volt is used to power the circuit board that directs the refrigerator functions. When running in a mode such as LP, it means the heat source, by far the largest power requirement, to evaporate the ammonia is being provided by an LP gas burner.

WARNING: Most LP gas appliances used in recreational vehicles are vented to the outside of the vehicle. When parked close to a gasoline pump, it is possible that gasoline fumes could enter this type of appliance and ignite the burner flame, CAUSING A FIRE OR AN EXPLOSION.

#### RANGE AND OVEN

Manufacturer:

Maytag Customer Service Maytag Customer Assistance

P.O. Box 2370

Phone: 1-800-544-5513

People using gas ranges in their home will find little difference in the operation of the range in the trailer. Other customers, used to electric ranges may be a little apprehensive at first; but, will quickly gain confidence. The basic operation of the gas ranges have been the same for many years, but please be sure to read all the directions furnished by the manufacturer and located in the Owner's Packet. Excellent service and parts manuals are available from the manufacturer.

WARNING: The operation manual for the range is titled "Maytag RV Cooking Appliances". If this has not been provided with your trailer, contact the manufacturer listed at the top of the page to obtain. Their manual contains specialized warnings and cautions that should be reviewed prior to operating the appliance.

#### MICROWAVE OVENS

Only federally certified technicians are permitted to service microwave ovens. For this reason the only service instructions contained in this manual are for removal of the complete oven. If you have a microwave problem please contact the appropriate manufacturer.

Magic Chef 28812 Phillips Street Elkhart, Indiana 46514 219-264-9578

Litton 2530 North 2nd Street Minneapolis, Minnesota 55411

605-336-5377

**Sharp Electronics Corporation** 

10 Sharp Plaza

Paramus, New Jersey 07652

201-5112-0055

Quasar

Division of Matsushia Elec. Corp

1325 Pratt Blvd.

Elkgrove Village, IL 60007

201-348-9090

Airstream has used two different methods of holding the ovens in place. The most common is a set screw configuration where two bolts apply downward pressure on top of the range. The bolts can be found in the cabinet directly above the oven, and out toward the front. Back them out a few turns and the front of the oven can be lifted up and out over the lower ledge.

The second method was to slide a piece of 3/4" pine board under the microwave in front of the rear supports. Once in place screws were run up through the bottom shelf into the 3/4" pine.

You will note neither method makes any holes in the microwave cabinet. The microwave is simply captured in its cabinet. Usually you will be able to move the microwave around in the cabinet, but it won't come out.

#### WATER HEATER

Manufacturer:

Atwood Mobile Products
4750 Hiawatha Drive

P.O. Box 1205

Rockford, Illinois 61105 Phone: 815-877-7461

Note: Review the water heater literature supplied in your Owner's Packet before proceeding.

CAUTION: Hydrogen gas can be produced in a hot water system served by this heater that has not been used for a long period of time (generally two weeks or more). Hydrogen gas is extremely flammable. To reduce the risk of injury under these conditions, it is recommended that the hot water faucet he opened for several minutes at the kitchen sink before using any electrical appliance connected to the hot water system. If hydrogen is present there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.

## **Electronic Ignition**

The switch used to light your electronic ignition water heater is located in the bathroom above the lavatory top. When the switch is turned on, the red light will come on indicating the "try" mode is in effect. Normally the burner will ignite in just a few seconds, and the light will go out. If your LP system hasn't been used for some time, the system may go into safety lock-out (about 20 seconds) before the air is all expelled from the lines. Turning the switch off for 30 seconds, then back on, reinstates the "try" mode.

## 110 Volt Operation

In the bathroom you'll see a 110 volt switch for the water heater. This provides power to the heating element. **DO NOT** use unless you are sure the water heater is full. (open a faucet and see if there is a full stream of water on the hot side)

The 110 volt element may be operated at the same time as the gas burner. To operate the 110 volt by itself simply turn the electronic gas ignitor switch off.

The heating element is 1500 watts so if breakers start to kick out when the air conditioner cycles you may want to turn the switch off to the heating element.

#### **SAFETY**

If your water system is full and cold and the water heater is ignited the system can see pressures as high as 160 psi before the relief valve starts to open. Since the water system normally operates in the 40 psi range the water expanding does pose unusual stress on the system. This normally does not cause any problems, but the stress is easily alleviated. As the water is heating just open any faucet and run as little as a cup of water. Just removing this small amount of water reduces the pressure build up significantly.

For fun watch the sequence of events your family goes through when you park the motorhome and ignite the water heater. More than likely someone will run water and relieve the pressure without even realizing it.

## HIGH VOLUME ROOF VENT (OPTIONAL)

Manufacturer:

FAN-TASTIC VENT CORP.

4349 S. Dort Hwy. Burton, MI 48529 1-313-742-0330 1-800-521-0298

The optional high-volume roof vent system is designed to quickly exhaust stale, hot air and draw in fresh air. It's great to use when the outside temperature really doesn't call for air conditioning, but heat has built up in your coach.

## **OPERATING INSTRUCTIONS:**

- 1. Rotate 3 speed switch to desired position, 0-off, 1, 2, and 3. The 3 speed switch must be set at 1, 2 or 3 to activate appliance.
- 2. Rotate thermostat knob toward 40° (cooler) until dome begins operating.
- 3. When equipped with reverse switch, there is a neutral (off) position. Fan motor will not operate when in/out switch is in its center "off" position. The dome will, however, operate up and down automatically as long as the 3 speed switch remains on.
- 4. To determine desired temperature setting;
  - a. Use the wall thermometer on furnace thermostat, or any interior temperature indicator.
  - b. Operate fan until interior comfort level is achieved. Rotate thermostat knob toward 110° symbol on label until dome begins closing. You now have the location for normal setting.

The thermostat sensor is calibrated approximately 4°. The minimizes rapid recycling of the unit, once desired temperature level is achieved.

5. The rain sensor built into your fan will prevent excessive rain from entering coach through open dome. Maintain a setting above (to the right of) "rain override" zone and dome will close when sensor becomes wet.

WARNING: Do not leave coach unattended with thermostat knob set in the "rain override" zone.

- 6. A rain sensor override is built into this system so you can operate your fan during light to moderate rains. When sensor is wet, rotate fan thermostat knob to coolest position to override sensor. Dome will open and fan motor will start. When sensor has completely dried, rotate thermostat knob back to desired setting for automatic operation.
- 7. To close dome in extremely hot conditions, rotate thermostat knob right, past 110° symbol to off. Dome will come down.
- 8. Always allow dome to completely cycle up and down. If dome "hangs up" in partially open/close position, rotate thermostat knob to extreme right and then left position allowing complete cycles down and up. Now reset to original comfort level.
- 9. When vehicle is in storage, rotate thermostat knob to right (off), after dome closes, turn 3 speed switch to "O" (off).

## **CLEANING INSTRUCTIONS:**

- 1) Turn fan motor OFF.
- 2) Remove 8 painted flathead phillips screws around perimeter of screen insert only.
- 3) Clean screen with soap & water solution and reinstall.

## **SPECIFICATIONS**

Trailer hitch

Airstream constantly strives to improve its product. All specifications are subject to change without notice. Note: all weights and measurements were made on prototype vehicles. Your production motorhome may vary slightly.

DIMENSIONS	350 Galley Slide	355 Galley & Bedroom Slide
Exterior Height with Air Conditioner	11' 8"	11' 8"
Interior Head Room	78 1/2"	78 1/2"
Interior Width	95"	95"
Exterior Length	35' 9"	35' 9"
Exterior Width	101	101
		`
CAPACITIES		
LPG Tank	105 Lbs.	105 Lbs.
Fresh Water Tank	79 Gal.	79 Gal.
Grey Water Holding Tank	57 Gal.	57 Gal.
Black Water Holding Tank	52 Gal.	52 Gal.
Fuel Tank, Ford	75 Gal.	75 Gal.
CHASSIS COMPONENTS		

5,500 lb. tow - 550 lb. tongue weight

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