

**TRAVEL TRAILER  
OWNER'S MANUAL**

***AIRSTREAM***



## INTRODUCTION

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

Airstream realizes our customers possess varying degrees of expertise in the area of repairing and maintaining the appliances in their trailer. 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.

A brief explanation of the operation of the appliances such as refrigerator, furnace, water heater and others are explained in this manual. However, you will also find manufacturer's information supplied in a packet included with this manual.

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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## LIMITED WARRANTY - AIRSTREAM TRAVEL TRAILERS

### WARRANTY COVERAGE

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

### BASIC WARRANTY PERIOD

This warranty extends for a period of one year from the date of original retail purchase.

### ITEMS COVERED

Any part of the trailer 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 Addendum

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.

- |                        |                     |
|------------------------|---------------------|
| * Refrigerator         | * Power convertor   |
| * Range                | * Water pump        |
| * Furnaces             | * Toilet            |
| * Water heater         | * TV antenna        |
| * Microwave            | * Stereo            |
| * Roof air conditioner | * Tires (pro-rated) |
| * LP tanks             | * Awnings           |

### 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
- \* Video recorder

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 trailer or component equipment as installed by the factory.

## **LIMITED STRUCTURAL WARRANTY**

For a period of two years from the date of purchase from an authorized dealer by the first retail purchaser, the **Airstream Limited Warranty Addendum** warrants the trailer to be free from substantial structural defects in materials and workmanship.

For 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. 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 above limitations 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, 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 trailer or defective part to an authorized Airstream dealer.

## **CARE AND MAINTENANCE**

This warranty covers only defective material and/or workmanship; 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.

Each Airstream exterior (not including the underside) is sprayed with paint or coating to prevent oxidation. This application is covered by a two-year warranty against peeling. Prolonged exposure to salt air or industrial fall-out will permit penetration through the coating material, causing damage to the exterior finish. Since Airstream, Inc., has no control over these conditions, it is necessary for the owner to wash and maintain their trailer as instructed in the Owner's Manual.

The owner is also responsible for following all recommendations, instructions and precautions contained in the Airstream Trailer 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 trailers 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 trailer needs repairs under the terms of the basic **Airstream Limited Warranty**, you should:

1. Take your trailer 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 • P.O. Box 629  
Jackson Center, Ohio 45334-0629

Attention: Owner Relations Department

Furnish the following information:

- \* The complete serial number of the trailer
  - \* 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 trailer be allowed to be brought to the Factory Service Center at the owner's expense.

## DEALER REPRESENTATION EXCLUDED

The full extent of the basic **Airstream Limited Warranty** is set forth in detail in the folder, and in the explanation of the basic **Airstream Limited Warranty** covered in the Airstream Trailer 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 basic **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 trailer. 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 the 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.**

## **EXPLANATION OF AIRSTREAM LIMITED WARRANTY**

The Airstream Limited Warranty is detailed in a separate folder. A plastic WARRANTY IDENTIFICATION CARD is sent to you after Airstream receives notification from your dealer of the sale. Since this I.D. card is necessary to obtain warranty, it should be kept in the trailer or on your person during the warranty period.

### **EXCLUSIONS:**

#### **Normal Wear**

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

#### **Accident**

We strongly urge our dealers and customers to inspect the trailer upon receipt of 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 customer's responsibility upon acceptance of delivery, unless Airstream is notified and the damage is verified by the person making the delivery. 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 will result in early failure for which Airstream cannot be held responsible.

#### **Exposure**

Not unlike a car, the steel parts of a trailer can and will rust if subjected to prolonged exposure to moisture, salt air, or corrosive air-borne pollutants without repainting. Aluminum oxidizes when unprotected under similar conditions, and refinery chemicals of a sulfurous nature are harmful to finishes if not washed off periodically. Extremely hot or direct sunlight will deteriorate rubber and fade curtains and upholstery. Conditions of this nature, although they may be normal for the area, are beyond Airstream's control and become the responsibility of the owner.

Although it is our obligation to correct a rain or plumbing leak within the terms of the limited warranty, it is the owner's responsibility to use reasonable, prudent care to minimize foreseeable secondary damage, such as a delaminated floor, stained upholstery, carpeting, drapes etc.

#### **Overload**

Damage due to loading, either beyond capacity or to cause improper towing because of improper balance, is beyond Airstream's responsibility. The Airstream trailer is engineered to properly handle the gross vehicle load rating on the certification label. Load distribution has a definite effect upon the towing characteristics and attitudes of the trailer. Level hitch installations are a necessity, and very important on a tandem axle trailer. There are limits to the amount of load that can be safely transported depending upon speed and road conditions, and reasonable cause to believe these factors have been exceeded could void the Airstream warranty. For additional information on the loading of your trailer, consult your Owner's Manual or gross vehicle weight rating plate.

The Airstream axle is manufactured to a tolerance of 1° camber and 1/8" toe-in. These tolerances will only change if the trailer is subjected to abuse, such as dropping off a sharp berm, striking a curb, or hitting a deep hole in the road. Such damage could 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.

### **SERVICE:**

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

Silver Key Delivery does not stop here. At that time a specified list of performance checks on your trailer equipment will be conducted and any deficiencies you have experienced since taking delivery will be corrected.

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 trailer. 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  
P.O. Box 629  
419 W. Pike Street  
Jackson Center, Ohio 45334-0629  
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 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**

**WARNING: FAILURE TO MAINTAIN YOUR COACH CAN CAUSE PREMATURE AND UNEXPECTED PARTS BREAKAGE AND/OR ERRATIC OPERATION THAT MAY BE HAZARDOUS.**

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

### **EVERY 1,000 MILES OR 60 DAYS**

Escape Window	Check operation of latches and upper hinge.
*Battery	Check water level.
Smoke Alarm	Test and replace battery as required.
Tires	Check tire pressure (See Specifications)).
Hitch	Check for loose bolts or unusual wear.
GFI Circuit Breaker	Test and record.

**WARNING: On new trailers check lug bolts at 200 miles and 1,000 miles. Torque 90 ft. lbs.**

### **EVERY 5,000 MILES OR 90 DAYS**

Exterior Door locks	Lubricate with dry graphite.
Exterior Hinges	Lubricate with light household oil.
LPG Hold Down	Lubricate with light household oil.
LPG Regulator	Check bottom vent for obstructions.
Main Door Striker Pocket	Coat with paraffin.
Wheel Lug Bolts	Torque to 75-85 ft. lbs. for aluminum wheels.
Break Away Switch	Pull pin and lubricate with household oil.
7-Way Plug	Spray with contact cleaner.
Hitch Ball Latch	Lubricate with non-detergent motor oil.
Hitch Ball	Lubricate with hitch ball lube or wheel bearing grease.
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.

\* As a battery ages and becomes less efficient, the water level should be checked at more frequent levels.

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

Brakes	Inspect, adjust or replace as necessary.
Wheel Bearings	Clean and repack.
Tires	Inspect and rotate.
Spare Tire Carrier	Lubricate moving parts.
Seals, Windows & Door	Clean with mild detergent and coat with "Slipicone".
TV Antenna	Lubricate all moving parts with silicone lubricant.
Exterior	Wax.
Escape Window	Lubricate latches with WD-40.
Hitch Jack (Manual)	Lubricate with light household oil. (Put oil can spout up under handle.)

## **EVERY YEAR**

Battery	Clean, neutralize and coat terminals with petroleum jelly.
A-Frame, Step	Wire brush and paint A-frame, step, rear frame.
LP Bottles	Have purged by LP supplier.
Seams	Check and reseal exterior seams, windows, lights and vents if necessary. Use Kool Seal or equivalent.

## **SUGGESTED MAINTENANCE PARTS AND LUBRICANTS**

### **BULBS, EXTERIOR**

Taillight	#2057
Back Up	#1156
License Plate	# 53
Clearance Light	# 194
Door Light	#1003
Convenience Light (Dump Valve)	# 53
Convenience Light (Hitch)	# 193

### **BULBS, INTERIOR**

Ceiling Light (Incandescent)	#1141
Ceiling Light (Fluorescent)	#F14T8-CW
Ceiling Light (Small Fluorescent, Thin Lite)	#F8T5-CW
Indirect, Dining & Bedroom (Fluorescent)	#F18T8-CW & F15T8-CW
Wardrobe Light & Dinette Light	#561
Wall Light	#1076
Oven	Standard Screw-in Base 12 Volt - 15 Watt
Refrigerator	5673

### **FUSES**

Entertainment Center	ATC 15 Amp
Battery Cable Fuses (Canadian approved trailers only)	SLC 50 Amp

### **MISCELLANEOUS**

Water Hose Gaskets	Wheel Bearing Grease
Extra Hair Pin Clips for Hitch	Grease Seals
Dry Graphite	WD-40 or Equivalent Aerosol Lubricant
Oil Can with 30 Weight Non-Detergent Oil	Silicone Lubricant
Light Household Type Oil	Spray Contact Cleaner
Hitch Ball Lube (May use wheel bearing grease.)	Sealer - Kool Seal

**MAINTENANCE RECORD**

Date	Dealer	Service Performed

# NOTES



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## TOWING YOUR AIRSTREAM

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### TOW CAR EQUIPMENT

If you plan to buy a new vehicle to tow your trailer we suggest that you include in your purchase the trailer towing options offered by most automobile manufacturers. These include such things as heavy duty alternator and radiator, heavy duty springs (**See Note:**) and shock absorbers, automatic transmission cooler, heavy duty fan and flasher unit and others, depending upon the make of the vehicle.

Transmissions may be manual or automatic, but an automatic transmission may prolong your car's engine life and generally does a better job of controlling engine loads than the average driver using a manual shift.

Having adequate power is very important when considering the purchase of a new vehicle or the trailer towing capability of your present one. Emission controls that are required by the Federal Government have reduced overall engine power.

American manufacturers realize more than 30% of the vehicles they sell will be used for towing some type of trailer. The dealers are provided with guidelines to use when helping a customer decide on a tow vehicle. The guidelines are not just determined by the power output of the engine. The gear ratio of the differential is also a very important part of the guideline.

Inspect your vehicle's hitch regularly for loose bolts or nuts, cracked welds, loose ball mounts, worn parts, etc.

New trailerists often carry more food and other supplies than really needed. Remember that every item you take along is one more thing to stow and adds weight to the total load you must pull. Consolidate items in shelves, lockers, and in the refrigerator. It is better to have one full and one empty locker than two half empty ones. Special care must be taken not to overload the front and rear ends of the trailer.

**Note:** Be realistic when ordering heavy duty springs. Only springs heavy enough to support your loaded vehicle (not including trailer) are necessary. Too harsh of spring rate will only shorten the life of the tow vehicle and trailer, and will make your journeys less enjoyable.

## **ELECTRIC BRAKES**

The brakes are operated by 12 volt current from your tow vehicle and **MUST BE HOOKED UP SO THAT YOU HAVE AN INTEGRAL SYSTEM WITH YOUR TOW VEHICLE BRAKES.** To prevent problems and insure satisfactory braking action, install a Kelsey Controller (or equivalent) in line with the controller in your tow vehicle.

A Kelsey Controller (or equivalent) installed in your tow vehicle will synchronize the trailer brakes with your tow vehicle brakes. It is designed to apply the trailer brakes with your tow vehicle brakes.

Your brake controller should be adjusted to provide for a slight lead of the trailer brakes over the tow vehicle brakes. Follow the directions provided with your controller and keep the information for future reference. Don't be afraid to ask questions! If you don't understand the directions, have the installer explain the procedures.

Due to normal brake lining wear, the brakes and the controller setting should be checked and readjusted, if necessary, during the trailer manufacturer's recommended inspection intervals.

**Note:** Brake lining adjustment should be periodically checked (fully) to be sure trailer brakes are in the same adjustment as the tow vehicle's.

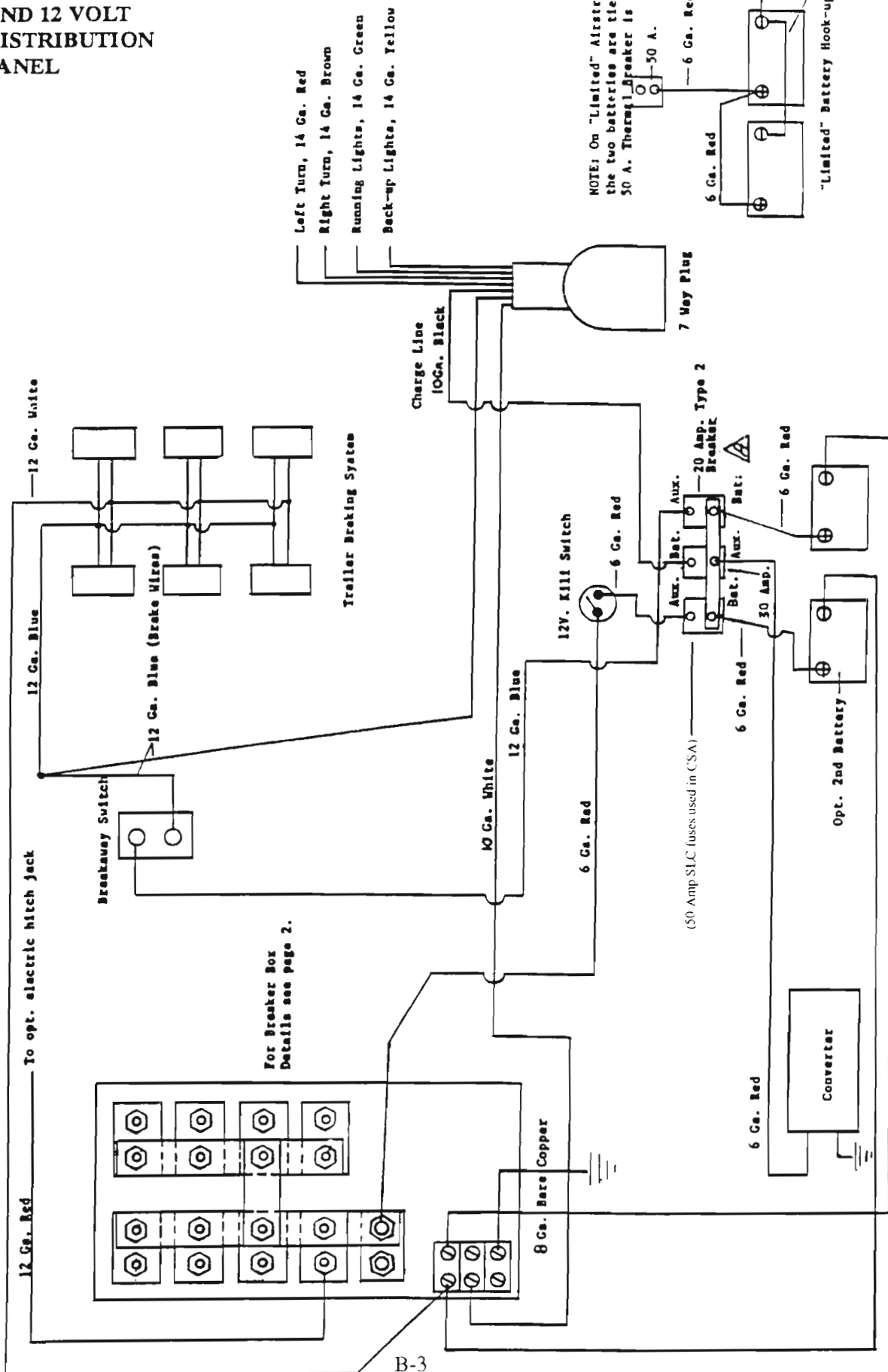
Properly set these adjustments will provide for safe comfortable stops. They will also help assure optimum brake and tire life for both the tow vehicle and the trailer.

In THE EVENT OF AN ACCIDENTAL SEPARATION of the tow vehicle and the trailer, the **BREAKAWAY SWITCH** will set and lock the trailer brakes for a sufficient length of time to stop the trailer. The switch is activated when the small pin in the front of the unit is pulled out by the wire attached to it and to the tow vehicle. **THIS PIN SHOULD BE PULLED OUT, LUBRICATED WITH LIGHT HOUSEHOLD OIL, AND REPLACED EVERY 90 DAYS.**

To prevent corrosion within the breakaway switch, pull the switch's pin straight forward and spray the inside of the switch through the hole with an electric contact cleaner (such as Spra-Kleen) and reinsert pin. A drop of light household oil on the groove near the base of the pin will allow the pin to operate freely. **WHEN THE TRAILER IS CONNECTED TO THE TOW VEHICLE, THE BREAKAWAY SWITCH LOOP SHOULD BE ATTACHED TO THE PERMANENT FRAME OF YOUR HITCH.** When disconnecting the trailer from the tow vehicle remove wire loop from the frame. **DO NOT REMOVE PIN FROM SWITCH BECAUSE THIS WILL APPLY THE TRAILER BRAKES.**

**CAUTION:** Do not use breakaway switch for parking brake.

# WIRE ROUTING SCHEMATIC - 7 WAY PLUG TO BATTERIES AND 12 VOLT DISTRIBUTION PANEL



## LOADING

Below is a sample of the weight information chart provided in all Airstream vehicles built after September 1, 1996. 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.

TRAILER WEIGHT INFORMATION:		CONSULT OWNER'S MANUAL FOR SPECIFIC WEIGHING INSTRUCTIONS AND TOWING GUIDELINES.
MODEL		GVWR
UVW	NCC	

THIS TRAILER IS CAPABLE OF CARRYING UP TO \_\_\_\_\_ GAL.  
OF FRESH WATER (INCLUDING WATER HEATER) FOR A TOTAL OF \_\_\_\_\_ LBS.  
REFERENCE: WEIGHT OF FRESH WATER IS 8.33 LBS/GAL; WEIGHT OF LP GAS IS 4.5 LBS/GAL (AVERAGE).

**GVWR** GROSS VEHICLE WEIGHT RATING MEANS THE MAXIMUM PERMISSIBLE WEIGHT OF THIS TRAILER. 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 TRAILER AS BUILT AT THE FACTORY. IF APPLICABLE, IT INCLUDES FULL GENERATOR 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 PERSONAL BELONGINGS, FOOD, FRESH WATER, LP GAS, TOOLS, DEALER INSTALLED ACCESSORIES, ETC., THAT CAN BE CARRIED BY THIS TRAILER. (NCC IS EQUAL TO OR LESS THAN GVWR MINUS UVW).  
CD-127

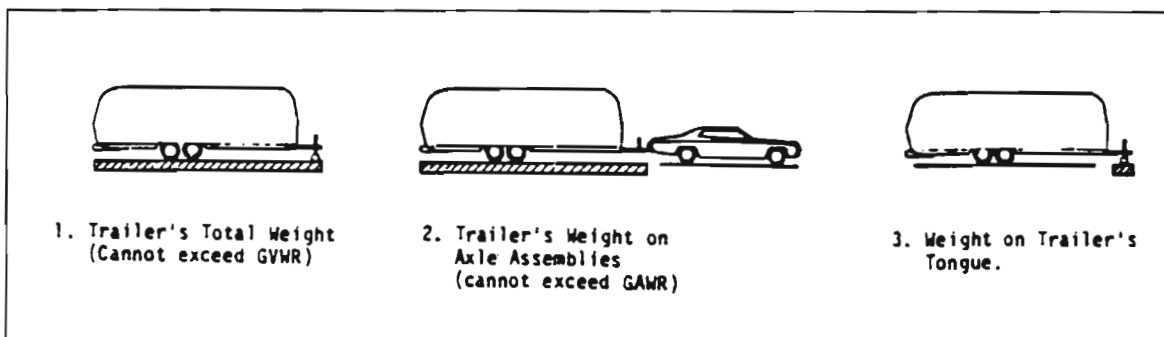
When loading heavy objects such as tools, skillets, irons, boxes of canned goods, etc. keep them as low as possible - preferably on the floor. Try to hold additional weight behind the axle to a minimum.

**WARNING:** Never add items such as generators, heavy tool boxes or motorcycle racks to the back of the trailer. Weight behind the axle will tend to magnify any sway that may occur when passing trucks or in gusty wind. If a heavy generator is mounted on the rear bumper what may have been an almost unnoticeable sway turns into a severe sway you may not be able to control.

**CAUTION:** Damage to your trailer caused by mounting heavy objects on the rear is considered abuse, and is not covered by warranty.

## WEIGHING YOUR TRAILER

The diagram below shows how to weigh the trailer on scales.



The allowable personal cargo must be distributed in your trailer in such a manner that the Gross Axle Weight Rating is not exceeded.

To determine this it is necessary to load all of your allowable personal cargo and variable weights. Then hitch the trailer to the tow vehicle with load equalizing hitch properly adjusted as shown on the following pages.

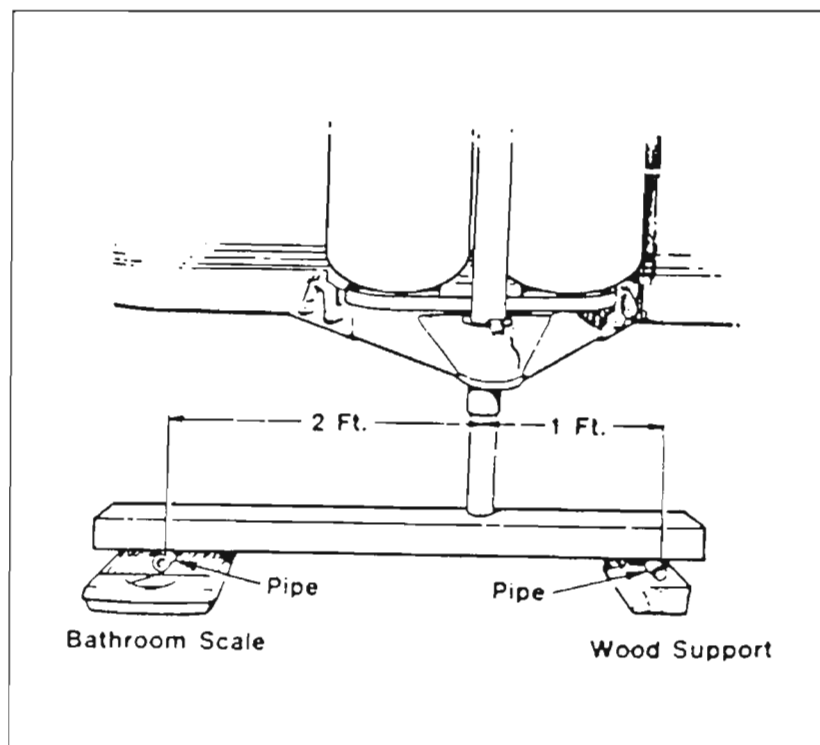
Place trailer on scale with both axles only on scale (see 2). If the weight on the axles exceeds the axle system G.A.W.R. then some of the personal cargo must be redistributed forward in order to place some of this weight on the tongue.

The tongue weight should be between 10% - 15% of the trailer's total weight, but must not exceed 1,000 lbs. Some tow vehicle manufacturers may restrict the amount of tongue load to a lower value. To determine tongue load, unhitch tow vehicle and place tongue hitch post on a scale. The trailer must be properly loaded as determined above, with your allowable personal cargo and variable weights.

A scale which has a lower weight limit than your tongue load, such as a bathroom scale, may be used to check the tongue weight by using the following method (see illustration).

Place a piece of wood of approximately the same thickness as the bathroom scales on the ground in line with the trailer hitch jack as shown. It should be so spaced that a short piece of pipe or other round piece will lay exactly one foot from the center line of the jack extension. Place the scales so that another round piece can be exactly two feet from the center line of the jack extension in the other direction. Place a 4 x 4 on the two round pieces and screw the jack extension down on the top of the 4 x 4 until the tongue of the trailer is supported by it. Multiply the scale reading by three. This will be the tongue weight of your trailer. If you exceed the capacity of the bathroom scales, increase the two foot dimension to three or four more feet, but always multiply the scale reading by the total number of feet between the wood and scales.

**CAUTION:** Be sure trailer is level when you read scales.



## HITCHING UP

Hitching up your trailer is something that will become almost second nature with practice. The following section includes proper hitch load distribution and a procedure for hitching up.

The electric jack is strongly recommended for anyone who, for any reason, should not physically exert himself. The electric jack makes hitching and unhitching a much easier operation.

### Equalizing Hitch Load Distribution

When a trailer is hitched up properly to a tow vehicle with a load equalizing hitch, approximately 1/3 of the trailer's tongue weight will be on the trailer's axles and 2/3 will be transferred to the tow vehicle, 1/3 of this weight transfer will be carried by the front wheels and 1/3 by the rear wheels of the tow vehicle (See diagram). Thus, the tire load of each wheel on the tow vehicle will be increased by 1/6 of the trailer's tongue weight. The tire air pressure of the tow vehicle should be increased to compensate for this additional weight. Refer to the vehicle's owners manual for this information.

**CAUTION:** The tongue weight should be approximately 10% of the trailer's total weight, but **MUST NOT EXCEED 1,000 lbs.** And, under no condition should it exceed the hitch rating. Your hitch rating information should be provided to you by your hitch installer.

### Sway Control Device

Although Airstream has not intruded into the hitch manufacturers field of expertise and preformed formal testing, we find the vast majority of Airstream owners purchase sway control devices.

When passed by large trucks or when exposed to sudden crosswinds the trailer will be "pushed" and this action will be felt in the tow vehicle. It's our understanding the sway control devices will reduce the amount of movement and make towing more comfortable and add some safety.

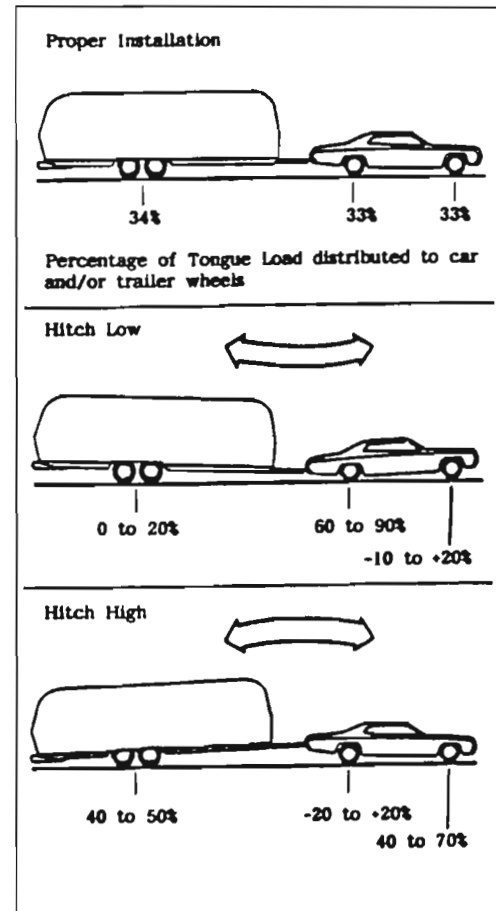
Follow the directions of the sway control manufacturer when having installed and using.

### Steps for Hitching Up

Jack up the trailer hitch until there is clearance for the HITCH BALL to slide under. Remove safety pin, slide the locking lever forward and raise. Back the tow vehicle straight back to the hitch. (See Fig. 2). This can best be accomplished through the use of prearranged hand signals with the help of another person; but, if you are hitching up by yourself we recommend the use of a HOOK-UP VIEW MIRROR.

Lower the trailer hitch onto the hitch ball. Then close the locking lever and insert safety pin. (See Fig. 3)

Now raise the trailer and tow vehicle to the full height of the hitch jack (See Fig. 7) and then attach the LEVELING BARS. (See Fig. 4, 5 & 6). Lower the tow vehicle and trailer (See Fig. 7).



The hitch ball should be level to slightly higher. Readjust leveling bars until this condition is correct by increasing or decreasing the length of chain engaged in "A" frame saddle bracket. Short chain raises hitch ball, longer chain lowers it. A level condition will result in the best balance for towing and steering control as the weight equalizing hitch distributes the hitch load.

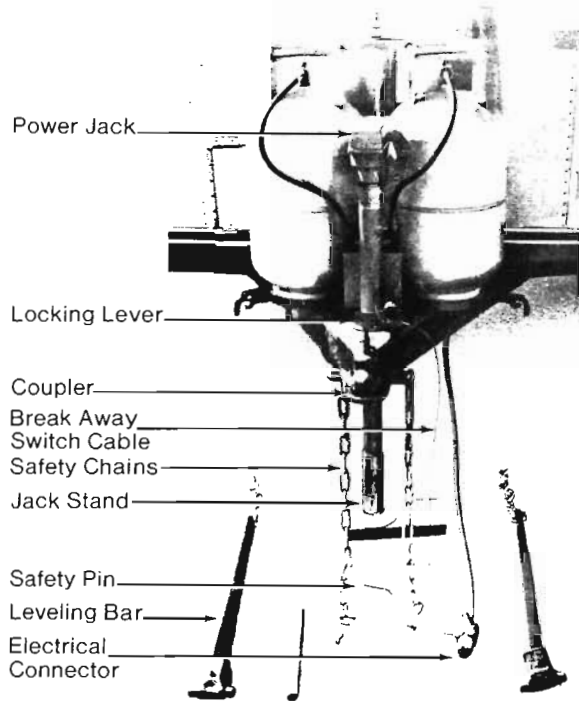


Fig. 1 - Hitching Up Equipment

A low hitch ball increases tail wagging tendencies by lowering the nose of the trailer, thus changing the center of support for the trailer and reducing the weight on the front wheels of the tow vehicle. With proper hitch installation and hitching up, the bar should have a noticeable amount of deflection or bending. (See Fig. 8) A little practice with your rig will teach you how far to pull the bar, and you may wish to mark the chain links that match your rig.

Always choose level ground for checking correct hook up. For further information see hitch manufacturer's literature.

**Note:** If your tow vehicle is equipped with adjustable load leveling air shocks, you must load the tow vehicle first with typical luggage and passengers and bring it back to level. Then attach the trailer and adjust the load leveling bars. Otherwise the air shocks on your tow vehicle will overload the rear wheels. **DO NOT USE AIR SHOCKS TO LEVEL TOW VEHICLE AND TRAILER AFTER HITCHING UP.**

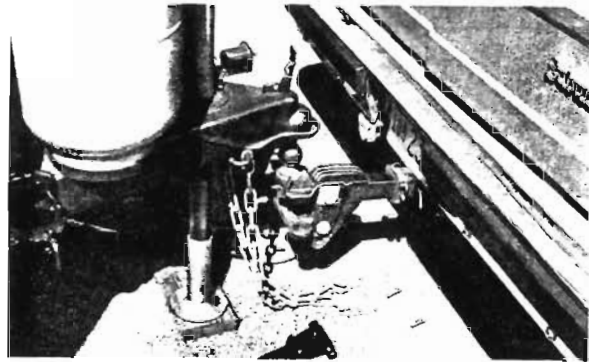


Fig. 2 - Hitching Up

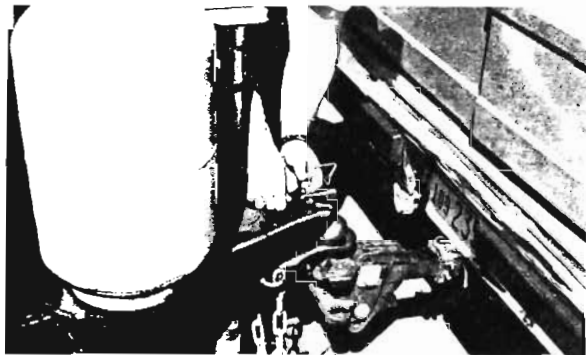


Fig. 3

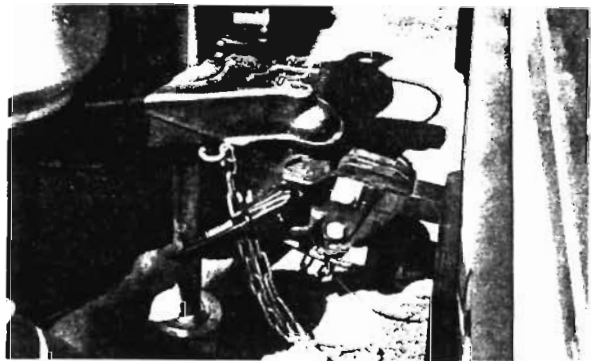


Fig. 4



Fig. 5

**Note:** Coupler height on the trailer is determined by leveling the trailer end to end, then measuring from the ground to the top of the ball socket.

Attach the safety chains (See Fig. 10) to the welded portion of the hitch or the tow vehicle's frame, but never to the removable ball mount. Cross the safety chains under the hitch.

**CAUTION:** Retract the hitch jack completely for maximum ground clearance. Remove the jack pad (See Fig. 12) and stow in the car's trunk along with leveling jack, and other gear used when stopped. **NEVER TOW YOUR TRAILER WITH THE JACK DOWN.** Check that the fold-away step is up and that the main door is completely closed and **LOCKED** for towing. If it is not locked the constant vibration of travel may cause it to open with possible damage.



Fig. 6



Fig. 7

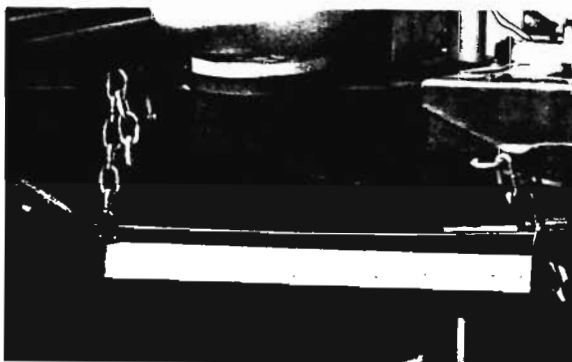


Fig. 8



Fig. 10



Fig. 9

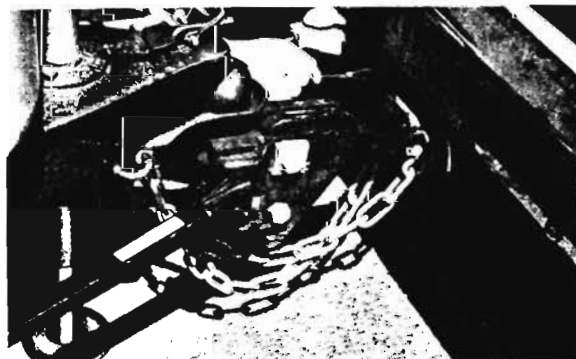


Fig. 11

Move the rig ahead about 50 feet and test the trailer brakes, then check the ground for forgotten objects. Regularly check the condition of your tires, air pressure and the tightness of the lug bolts.

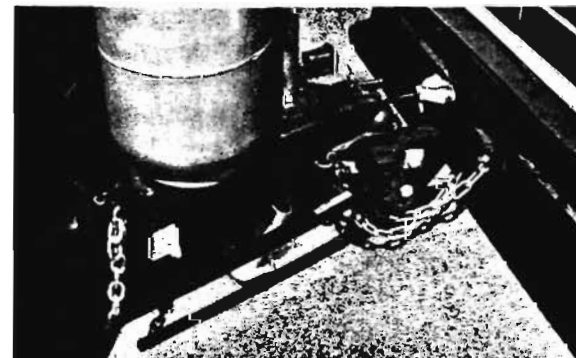


Fig 12



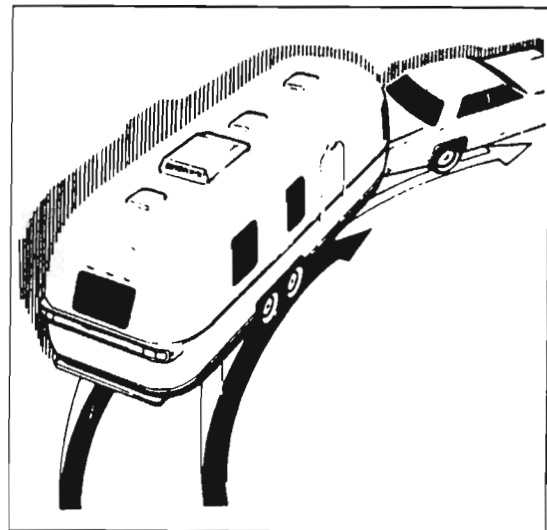
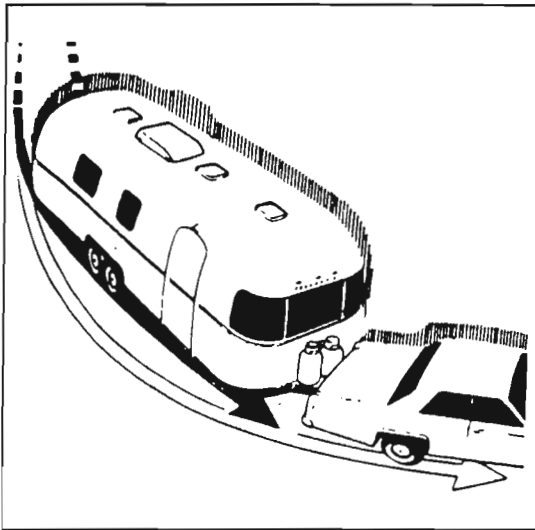
## TOWING TIPS

We want every owner to be a safe and courteous driver. A few hours of towing practice in a large empty supermarket lot will make pulling your trailer over the road much easier. Line out two corners for left and right turns. You may also use these corners to practice backing and parking.

**OBSERVE THAT THE TRACKS MADE BY THE TRAILER WHEELS ARE DISTINCTLY DIFFERENT FROM THOSE MADE BY THE TOW VEHICLE.** Studying this will make it easier for you to correct mistakes. Truck or trailer type fender or door grip rear view mirrors are a must for maximum visibility and in most states they are required by law.

After thoroughly inspecting your hitch, brakes and tires you should be ready to tow. Check traffic, signal that you are about to pull away, and start slowly. Look often in your mirrors, and observe the action of the trailer, then carefully move into the proper lane of traffic. Remember that the trailer wheels will not follow the path of the tow vehicle wheels; therefore, **WIDER TURNS ARE NECESSARY WHEN TURNING TO THE LEFT OR TO THE RIGHT.**

**ON FREEWAYS OR EXPRESSWAYS** try to pick the lane you want and stay in it. Always maintain plenty of space between you and the car ahead, at least the length of the tow vehicle plus trailer for every ten miles per hour. Remember that in order to pass another vehicle you will need longer to accelerate. You must also allow for the length of the trailer when returning to the right hand lane.



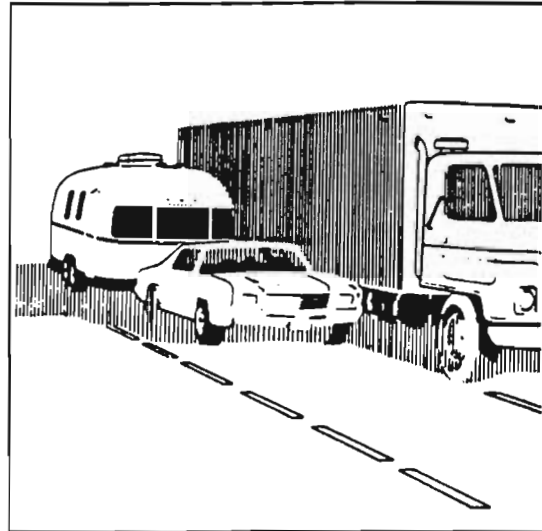
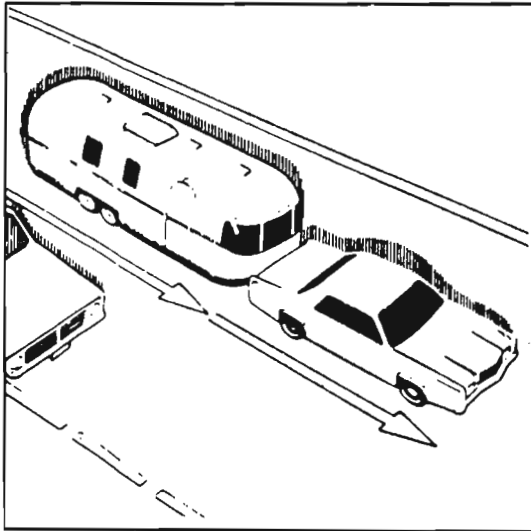
### Tracking

On a two lane road cars will be lining up behind you because you travel at a lower speed. It is both courteous and sensible to signal, pull onto the shoulder, and let them pass. Your trailer is designed to be towed easily at any legal speed, so if you are not careful you may be inclined to forget it is there.

The **BRAKE CONTROLLER** is activated when you apply the brakes of the tow vehicle. Your tow vehicle brakes will automatically apply the trailer brakes first when properly adjusted. This will help keep your tow vehicle and trailer in a straight line and make you stop as if you were driving the tow vehicle alone. If swaying or swerving should occur briefly operating the controller separate from the vehicle brakes may help correct the situation. Practice this maneuver on a clear highway. Don't wait for an emergency then grope for the controller.

When trailering you might encounter a temporary cooling system overload during severe conditions such as hot days when pulling on a long grade, when slowing down after higher speed driving, or driving long idle periods in traffic jams. If the hot indicator light comes on, or the

temperature gauge indicates overheating and you have your air conditioner turned on, turn it off. Pull over in a safe place and put on your emergency brake. Don't turn off the engine. Increase the engine idle speed. Lift the engine hood and check for fluid leaks at the radiator overflow outlet. Check to see that all drive belts are intact and the fan is turning. If you have a problem have it fixed at the next opportunity. If there is no problem the light should go off or temperature should come down within one minute. Proceed on the highway a little slower. Ten minutes later resume normal driving.



### Passing

**WARNING:** Never open a radiator cap when the tow vehicle is hot. Check the coolant level when the vehicle is cool.

When going downhill in dry weather, down shift so that engine compression will slow the whole rig down. Take dips and depressions in the road slowly and do not resume normal driving speeds until you are sure that the trailer wheels are clear of the dip.

**WARNING:** On slippery pavement do not use engine drag to help slow down as this may cause the rear wheels of the tow vehicle to skid. On icy pavement drive slowly and if you feel the tow vehicle skidding gently apply the trailer brakes only. This will bring the tow vehicle and trailer back into a single line. Chains do not help trailer wheels.

When driving in mud and sand let the momentum carry the rig through. Apply power gently and use as little as possible. Stay in the tracks of the vehicle ahead and keep the tow vehicle in the highest possible gear. If you get stuck it is best to tow out the entire rig together without unhitching.

If you have to tow long distance over bad roads, the stones and gravel thrown back by your tires will dent and scratch the finish of your trailer. To prevent this use masking tape to secure heavy cardboard to the lower front end of the trailer. Remove tape from trailer as soon as possible to avoid damage to the finish.

Despite the best hitch you will notice that whenever a large bus or truck overtakes your rig the displaced air first pushes the trailer rear slightly to the right and then affects the front. It may be necessary to steer very slightly, momentarily, toward the bus or truck to help compensate for the sway induced by the passing vehicle. Do not apply the vehicle brakes as this can tend to exaggerate the situation. You may find, however, that briefly applying the trailer brakes with your manual control will help eliminate sway.

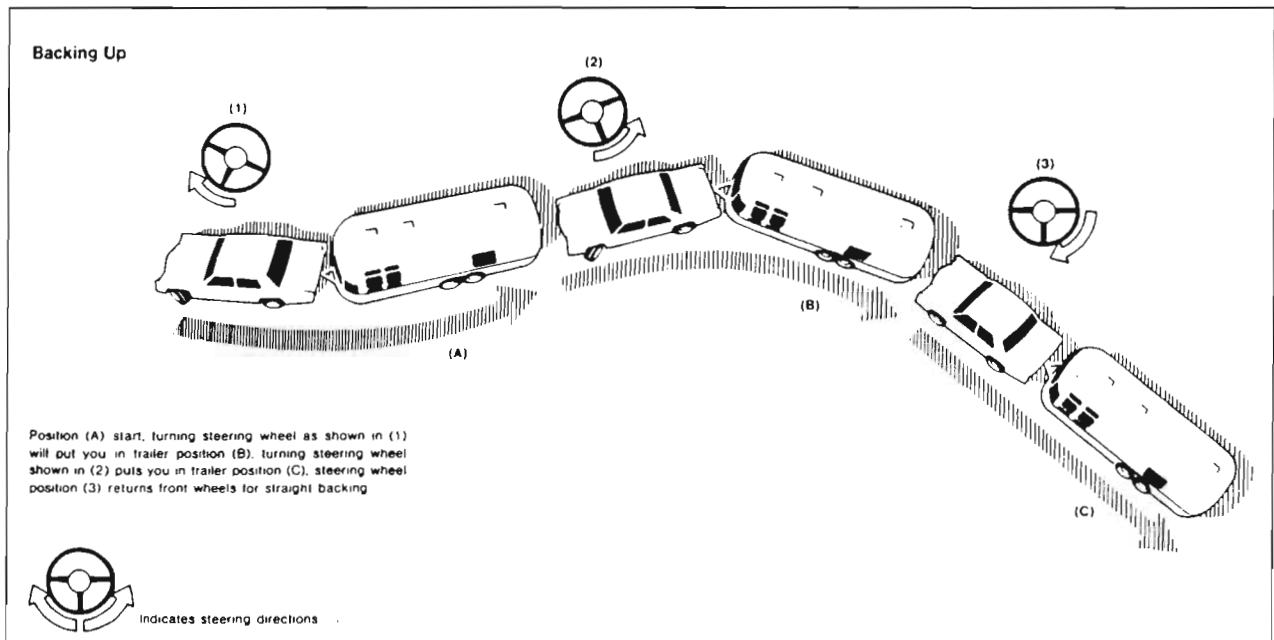
**CAUTION:** When stopping on a hill or slope, leaving your car in gear is not enough for standstill safety. **CHOCK THE TRAILER WHEELS** to be double sure. Do not use trailer brakes as parking brakes.

### Backing Up

In BACKING UP the important thing to remember is to DO EVERYTHING SLOWLY and to correct immediately if you see the trailer turning the wrong way. Concentrate on the rear of the trailer. With your tow vehicle and trailer in a straight line back up slowly and turn the bottom of the steering wheel in the direction you want the trailer to go. Watch out the window or in the mirror until the rear of the trailer is pointing in the desired direction. Your car will be following the trailer in an arc. Straighten the car and trailer by turning the steering wheel more sharply, then when they are in line, straighten the steering wheel.

ALWAYS TRY TO BACK TO YOUR LEFT BECAUSE THE VISIBILITY IS MUCH BETTER. (See Illustration) When you don't make it on the first try it is usually much easier to pull forward to your original position and start over.

If your spouse or traveling companion normally directs you when backing they should position themselves forward of the tow vehicle so they can easily be seen by the driver. Their directions should always indicate to the driver the direction the rear of the trailer should go. A little practice in a parking lot with the person giving directions can save a lot of frustration when backing into a campsite.



## **SUGGESTED PRE-TRAVEL CHECK LIST**

### **Interior**

1. Turn off water pump switch.
2. Check battery water level.
3. Close windows and vents.
4. Turn off gas.
5. Lock all interior cabinet doors.
6. Latch refrigerator door. (Seal containers first.)
7. Hold down or stack securely all loose, hard and sharp objects.
8. Fasten sliding and foldette doors.
9. Drain toilet bowl.
10. Turn off interior lights.
11. Set table in upright position.
12. Pull up or retract step.
13. Lower blinds.
14. Secure and lock main door.

### **Exterior**

1. Disconnect and stow the electrical hookup cord, the sewer hookup hose (flush out), and the water hookup hose.
2. Turn off gas line shut off valve to appliances.
3. Remove or stow leveling jacks and wheel chocks.
4. Check Hitch: It must be properly attached.
5. Check safety chains and breakaway switch cable.
6. Fully retract jack. Remove and stow jack stand or wood block.
7. Check clearance and stop lights.
8. Check lug nuts.
9. Check tires for correct pressure.
10. Check that TV antenna is properly stowed.
11. Adjust tow vehicle mirrors.
12. Pull forward some 50 ft., test brakes, and check site for forgotten objects and cleanliness.

### **Home**

1. Leave house key with your neighbor.
2. Store valuables and important papers in a safe place.
3. Discontinue newspaper, milk and other deliveries.
4. Ask the Post Office to hold your mail for you.
5. Arrange with the telephone company for discontinued or "vacation service".
6. Arrange care for your pets.
7. Have your lawn, garden and houseplants cared for.
8. Lock all windows and doors securely. Keep shades open for a lived in look.
9. Cover all food to keep out mice and insects.
10. Eliminate all fire hazards. Place matches in a tin box or glass jar.
11. Store oil, gasoline and other flammables properly.
12. Destroy all newspapers, magazines and oily rags.
13. Notify police.

## **Trailer Equipment and Accessories**

1. Water hose, 5/8" high pressure, tasteless, odorless, non-toxic.
2. "Y" connection - water hose.
3. Sewer hose with clamp.
4. Drain cap with hose drain.
5. Holding tank cleaner and deodorizer.
6. Power cord adapter 30 amp capacity.
7. 50 ft. electric cord, 12-3 wire.
8. 25 ft. electric cord, 10-3 wire, 30 amp capacity.
9. Wood blocks for leveling.
10. Wheel chocks.
11. Hydraulic jacks.
12. Cross type lug wrench.
13. Quality tire gauge.
14. Emergency road warning triangle.

## **Personal**

1. Automobile insurance to cover you and your family fully.
2. Avoid cash. Use travelers checks and credit cards.
3. Confirm reservations.
4. Have sunglasses for everyone.
5. Pack cameras and films.
6. Make a check list of clothing for everyone, and toilet articles.

## **Motoring Essentials**

1. Display car and trailer registration properly.
2. Carry driver's license. In Canada you will need a non-resident liability insurance card.
3. In Mexico you must have special auto insurance.
4. Carry an extra set of ignition and trunk keys in a separate pocket, or in your wallet.
5. Keep an operating flashlight with fresh batteries in the glove compartment.
6. Pack the trunk so that you can reach the tools and spare tire without completely unpacking.
7. Keep sharp or hard articles securely packed wherever they may be.
8. Do not pack things in the passenger seating area. You need the maximum space for comfort.
9. Wear easy-wash, drip-dry traveling clothes.
10. Do not make your vacation trips a mileage marathon. Stop and relax frequently.
11. Carry a first aid kit.
12. Carry your pet's dish, food, leash and health and registration papers.

# NOTES

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## CAMPING

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### 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. Contemplate other means of escape in case the designated exits are blocked.

**WARNING:** The escape window(s) identified by red release latches, are opened by lifting up both latches, then turning toward the center. Push out on the glass and it will swing clear. The window operation should be checked each trip and the latches lubricated with WD-40 or equivalent every six months. A loop is provided in the SCREEN RETAINING SPLINE so it can be rapidly removed.

**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 still among the leading causes of fires.

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

## OVERNIGHT STOP

Airstream owners have parked virtually every place imaginable from filling stations to farm lands. In time you will develop a knack for spotting wonderful little roadside locations by turning off the main highway and exploring.

There are many modern trailer 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.

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 battery which supplies the 12 volt current.

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 stopping for the night your Airstream 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. Unless the tow vehicle is needed for transportation, it is not necessary to unhitch.

**WARNING: Do not park in a manner that would prevent the escape windows from opening.**

Try to pick as level a parking spot as possible. Stabilizing jacks or blocks probably won't be required for an overnight stay. However, if you put the jack pad on the hitch jack and run the hitch jack down to take the weight off the car's springs this will provide some stability. If you must park on a slope, PARK FACING DOWNHILL. It is easier to level the trailer this way.

## SLIDEOUT ROOM

Once leveled the slide out room can be deployed. First turn the \*travel latches in the floor to the release position then depress the electrical switch. When the room reaches its extended position you will hear the electric motor labor. Even if you don't release the switch the increased electrical resistance in the motor will cause it to shut off.

Before traveling make sure all travel latches are secured.

\*At time of publication the travel latch arrangement had not been finalized. Your trailer may have additional travel latches at the top.

All you need to do to enjoy the self-contained luxury of your Airstream is to turn on the LP gas and light any appliances with pilots.

Before moving on, check your campsite both for cleanliness and also to be sure you haven't left anything behind. Turn off the gas supply and make sure everything is properly stowed. Use your PRE-TRAVEL CHECK LIST and you are ready for more travel adventure.



## **addendum**

### **SLIDE OUT ROOM**

#### **EXTENDING**

Prior to extending the slide out room the trailer should be level. The front stabilizing jacks **MUST** be deployed. If the front jacks aren't down when the room is extended the side to side imbalance will twist the body of the trailer if it's only supported by the front hitch jack.

Once leveled and stabilized locate the switches to operate the room. They are black and located on the interior wall just forward of the room. The left switch, marked lock downs, must be used first. The lock downs are the large paddle latches on each end of the room. Depress the switch to the unlock position and hold. You'll be able to see the paddle latch on the forward end of the room retracting. Hold the switch down until the paddles are completely retracted and you hear the operating motors just start to "strain". The motors are thermal protected so you won't have to worry about damaging them.

Now hold the slide out switch in the "out" position. Hold the switch until the motor stops indicating the room is fully extended.

Retracting is the same procedures in reverse order. Make sure the room is retracted and the lock down paddle latches firmly engaged PRIOR to storing the stabilizing jacks.

#### **FAILURE TO RETRACT**

In the unlikely event the room won't retract the first place to check is the lock down paddle latches. If curious fingers have hit the lock down switch and the latches aren't fully closed power is automatically cut to the slide out switch. To correct this situation depress the unlock position on the lock down switch until you're sure they are fully retracted then try the slide out room switch again.

If the room still won't retract check your 12volt distribution panel for blown fuses. It's located on the right side of the cabinet under the front window.

The next option is to manually close the room. Under your trailer, where the room is located, there's a large, hinged access panel attached to the underside of the trailer. It's rectangular and about a foot wide and six feet long. On the side opposite the hinge three or four stainless steel screws hold the panel closed. Opening the access panel reveals the motor and main drive shaft extending from the motor to the two gear driven slides.

On one end of the motor is a short lever. Swinging the lever up releases a brake that prevents the shaft from turning when the motor is shut off. With the brake released it's now possible to turn the drive shaft with a 3/4 inch wrench. The octagon stub for emergency use of a wrench is located on the end of the drive shaft towards the back of the trailer.



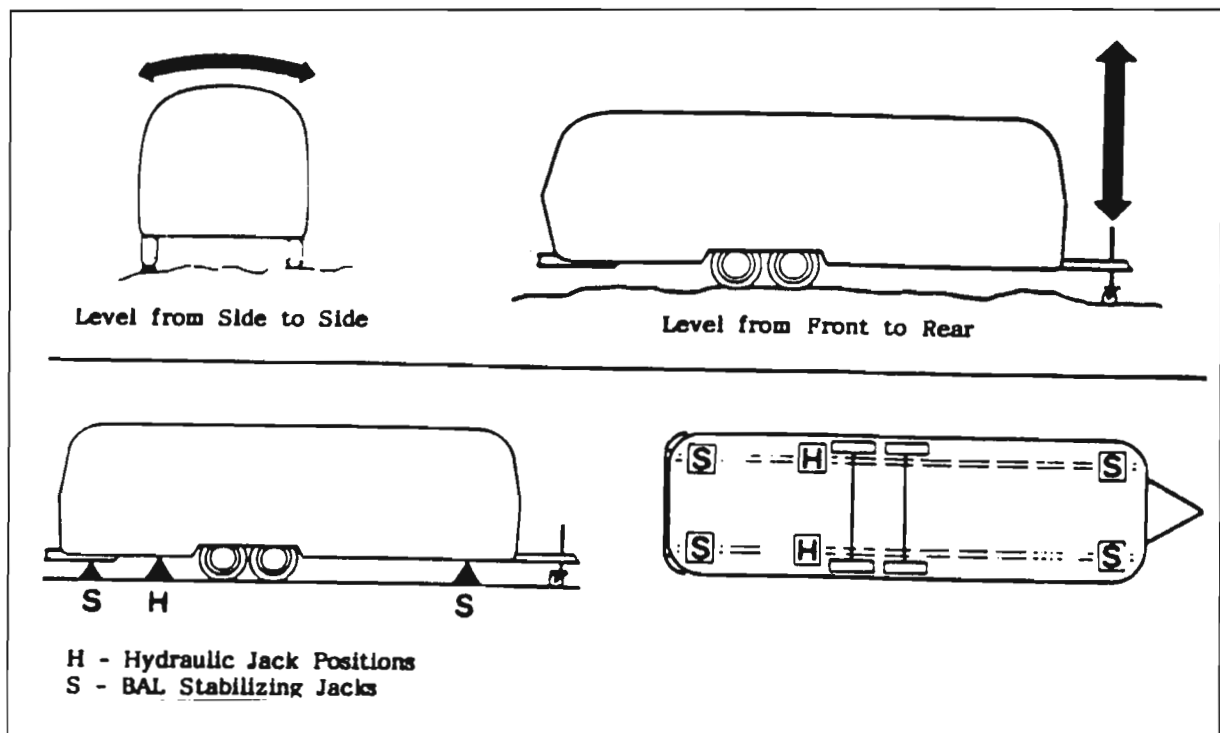
## EXTENDED STAY

Making a long trip in your Airstream 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.

When you plan to stay in the same place for several days, weeks or months, you will want your trailer to be as level and steady as possible. Check the attitude with a small spirit level set on the inside work counter or the trailer hitch "A-Frame". (See Diagram Below) If a correction is necessary then **YOU MUST LEVEL FROM SIDE TO SIDE FIRST** This can be done easily by backing the trailer up one or more 2" x 6" boards. (See Diagram) We do not recommend placing tires in a hole for leveling.

**LEVEL FROM FRONT TO REAR** by disconnecting the hitch from the tow vehicle, putting the jack pad under the hitch jack and adjusting the jack up or down until you are level. Block or chock the wheels to keep the trailer from rolling. Use **STABILIZING JACKS** at all four corners as shown in the diagram to eliminate the natural spring action of the axles. Optional **STABILIZING JACKS**, whether manual or power, should only be used to stabilize trailer.

**WARNING:** Whenever the trailer must be lifted with a jack, as when changing a tire or leveling on very rough terrain, **ALWAYS PLACE THE LIFTING JACK UNDER THE MAIN FRAME RAIL**. A label is provided to indicate the proper position for the jack. **NEVER USE STABILIZING JACKS TO LIFT THE TRAILER.**



**HOOK UP TO WATER** (See Fig. 3) by attaching a 1/2" minimum high pressure water hose to the city water service.

The power cord is stored in the lower roadside rear storage compartment. The cord is stored on a tray that can be slid out and dropped down for ease of use.

The power cord is plugged into City Power Service.

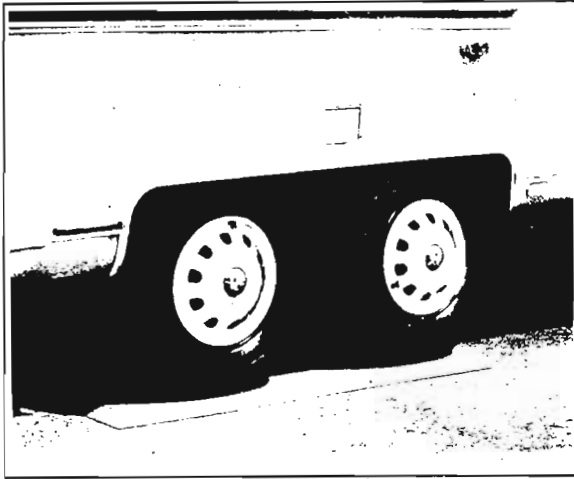
Hook your **WATER DRAIN HOSE** (See Fig. 5) in the **SEWER DISPOSAL FACILITY** and attach to the drain outlet in your trailer.

Turn on gas supply. Light the range and oven pilots. Turn on the water heater, refrigerator and furnace.

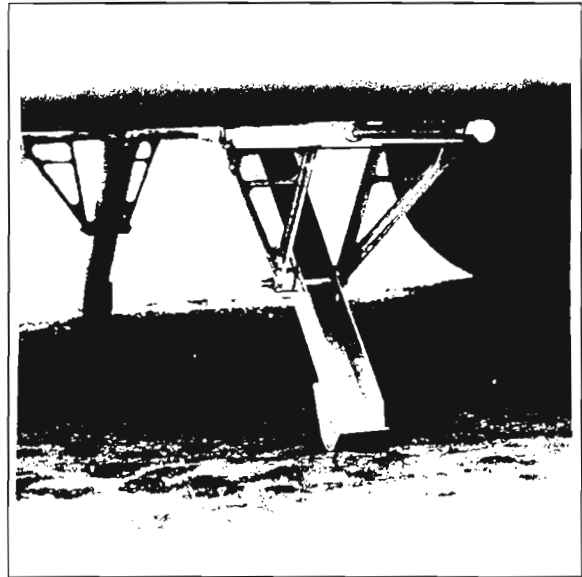
When you stay for an extended period where electric or water hookups are not available, you must make regular checks on the condition of your 12 volt battery by hooking up the tow vehicle/trailer electrical connector and running the tow vehicle engine at a fast idle. 45 minutes per day should provide about 3-4 hours of power. Carry drinking water in a clean bucket to refill your tank. When your waste tank nears capacity move to a dumping location.

The **CABLE TV** and **TELEPHONE** hookups are located on the right hand side in the power cord storage compartment. The interior telephone jack will be located in close proximity to the TV antenna jack.

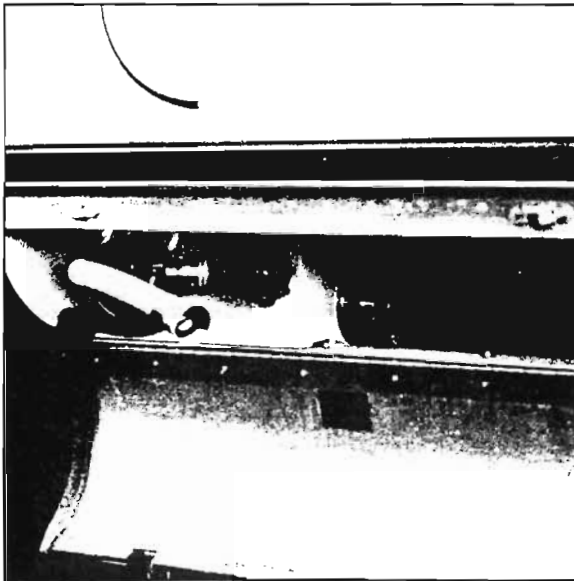
**WARNING:** Check your escape window(s) to make sure they will open completely. Also make sure the terrain under the window is suitable for rapid exiting.



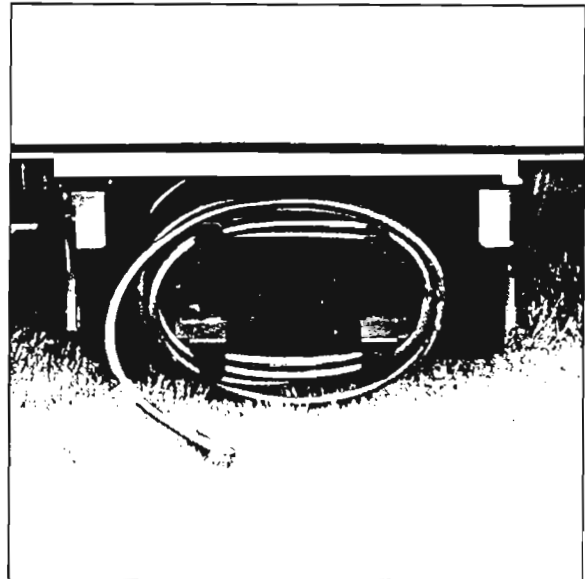
*Fig. 1 - Trailer Leveling*



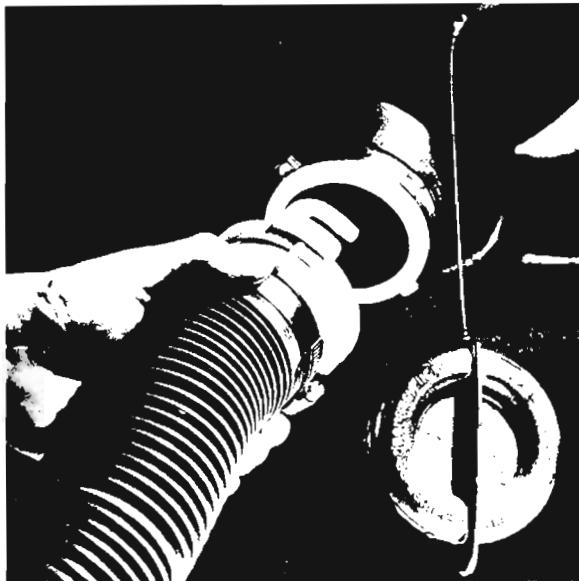
*Fig. 2 - B.A.L. Stabilizing Jack*



*Fig. 3 - City Water Hook-Up*



*Fig. 4 - 120 Volt Electrical Cable*



*Fig. 5 - Waste Drain Hose Hook-Up*

## WINTER TRAVELING

Traveling in sub-freezing temperatures will require certain precautions to protect the plumbing system and your personal belongings from being damaged by freezing.

Whenever possible the heat should be kept on at a constant temperature. It is easier for the furnace to keep a constant room temperature than for the trailer temperature to be allowed to drop to 50 degrees Fahrenheit then attempt to raise it to room temperature.

**CAUTION:** If you have the optional air conditioners with heat pump they should not be used if ambient temperatures remain below 25°F for more than 12 hours.

Only the furnaces are ducted to provide heat to tanks and plumbing to prevent freezing.

**WARNING:** Always shut off the LP gas when gasoline is added to the tow vehicle.

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 raising? Remember, when towing at 50 MPH the wind chill factor will cause the interior of the trailer to cool much faster than a trailer that is parked.

When parked in sub-freezing temperatures make sure you keep a full supply of LP gas and plug into a 110 volt power source whenever possible. A fully charged battery will not last more than 8 to 10 hours if the furnace is running almost constantly and 110 volt power is not available.

Leave cabinet doors, wardrobes and bed doors partially open to allow warm air to circulate around plumbing lines and fixtures. Insulate and/or wrap your exterior water lines with heat tape.

**CAUTION:** Some trailers will have exterior water service or ice making capabilities in the refrigerator. In both cases water lines are in unheated sections of the trailer and must not be used in below freezing conditions.

Water valves are provided so the water can be turned off to these lines. The water valve to the refrigerator is located in the lower portion of the cabinet directly forward of the refrigerator. The exterior water service valve is located in the lavatory cabinet. Close these valves and drain the line to prevent freeze damage.

## CONDENSATION

It is also important to guard against excessive humidity. Cold air will not hold the moisture, and "sweating" will occur around window frames, on window glass and may occur where structural beams connect the inner and outer walls of the trailer. The best method to combat sweating is to hold water vapor producing functions to a minimum. Boiling water, baths, showers, washing dishes are necessities, but usually can be reduced. Opening windows just slightly on opposite sides of the trailer will also help alleviate the problem. In severe conditions you may want to use a small dehumidifier to aid in reducing condensation.

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

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## EXTERIOR

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### Cleaning

As a general rule of thumb we recommend the trailer 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.

**CAUTION: ABRASIVE POLISHES OR CLEANING SOLVENTS SUCH AS AUTOMATIC DISHWASHER OR ACID ETCH CLEANERS ARE TOO STRONG AND SHOULD NEVER BE USED. RINSE ALL GRIT FROM SURFACE PRIOR TO WASHING.** Use soft rags or wash mitts always moving lengthwise with the trailer. **NEVER rub hard on the coating. Even the softest rag will damage the coating if excessive pressure is applied.**

ALWAYS CLEAN YOUR TRAILER IN THE SHADE OR ON A CLOUDY DAY WHEN THE ALUMINUM 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. **WHEN WASHING OR POLISHING YOUR TRAILER, ALWAYS WIPE "WITH" THE GRAIN OF THE METAL.**

After cleaning and drying, a good grade of non-abrasive 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 trailer after washing, use a small amount of kerosene on a rag and wipe the spots individually, being careful not to scratch the finish.

To keep your trailer looking new, paint the "A" frame, LPG tanks, and rear frame periodically.

It is recommended that the caulking and sealant used in external seams and joints such as end shell segments and around window frames, light bezels, beltline and rub rail molding, etc. be checked regularly. If this material has dried out and become 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 Airstream dealer.

## Main Door

**CAUTION:** When towing, the door lock must be secured. If it is not locked, the constant vibration of travel may cause the door to open with possible damage.

## Screen Door

The screen door secures to the main door by means of a slide bolt type latch. It can be operated independently by releasing the slide bolt and swinging the screen door away from the main door.

## Step

To operate the step, lift up on the latch bar and the step will drop down.

**WARNING:** Once the steps are lowered, press down on them to make sure they are secure in their notches.

**CAUTION:** Never travel with step lowered or extended.

## Exterior Windows

The windows in your trailer are safety glass. To open: release the two lever locks at the bottom, lift up on the two side operator handles until the window is in the desired position, and place the operators into one of the three positioning slots on the side of the frame. To lock the windows reverse this position

**Note:** Some windows are designed as an emergency escape exits. The rubber spline holding the screen in place is looped so it can be pulled out in one swift motion.

You and all your family should practice escape procedures so they can be rapidly accomplished even in total darkness.

**WARNING:** Never park your trailer so the escape windows cannot be easily used for emergency exits.

Clean your trailer windows the same way you clean the windows in your home. Clean the seals with a damp cloth or mild detergent every three to six months, taking care not to use strong solvents as they will damage the seals. A coat of natural silicone lubricant applied after the seal has dried will keep it flexible. Spread the lubricant evenly with a brush or finger, working it into the surface.

This is a good practice for all rubber seals in your trailer. For replacement of a damaged window contact an Airstream Service Center.

Your PLASTIC SCREENS are easy to maintain. Just clean occasionally with a damp cloth.

**Note:** They will melt at the point of contact if touched by a cigarette.

## Awnings

Complete instructions have been provided with your awning. You should make sure your traveling companion is familiar with the operation of the awning. If a sudden wind should come up, or if high wind is forecast, the awning should be retracted and stowed.

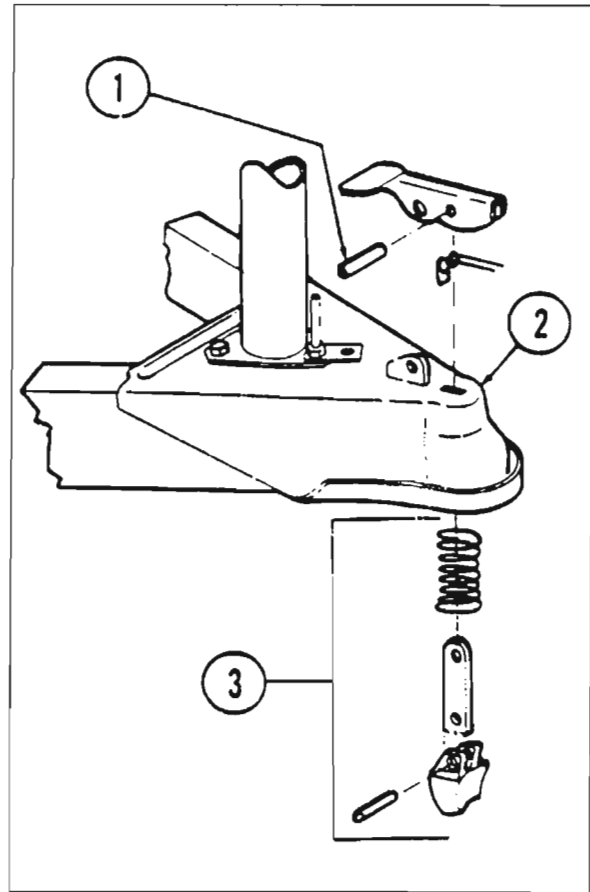


## Chassis

The standard RECOMMENDED HITCH BALL HEIGHT for your Airstream is 18 3/4". If you plan long trips with the trailer heavily loaded you should check your trailer, after loading, to determine the optimum height. To check, park the trailer on a level surface and crank the front jack up or down until the measurement from the frame to the ground is the same front and rear. Measure from the ground to the upper surface of the hitch ball coupler. Add one inch to this figure when setting the ball height on the tow vehicle to allow for the suspension settling under the added weight.

The LATCH ASSEMBLY on your coupling is a relatively simple mechanism, easily removed for cleaning. To remove use a proper size punch to drive the roll pin (see illustration) out of the latch handle. The tongue and spring will then fall free from the housing. When reassembling, compressing the roll pin with vice grip type pliers will make it easier to start through the hole.

**Note:** To raise the coupler latch it must first be slid forward.



1. Roll Pin
2. Coupler Housing
3. Tongue & Spring Assy

## POWER JACK

The power jack is operated by a switch located on the bottom of the housing. When the jack is fully extended or retracted internal limit switches automatically shut off the motor.

Should an electrical failure occur, remove the power head by loosening the two allen set screws. The jack post may now be operated manually by inserting the emergency handle into the coupling on top of the post.

### Replacing Power Head

It is essential that the following procedure is used before the power head is replaced on the post.

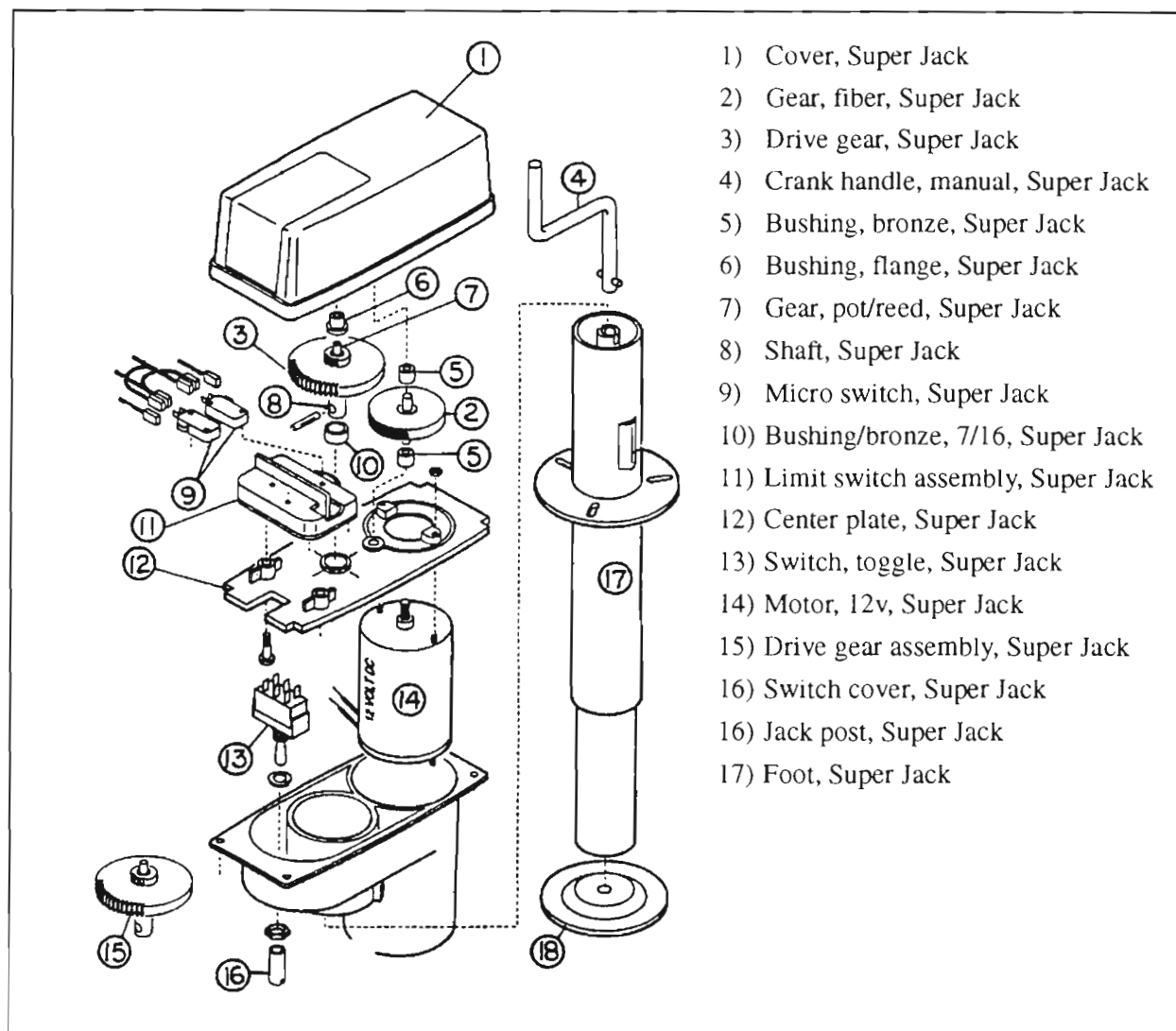
1. With 12 volts connected, ground the power head to trailer "A" frame. Operate main switch in "post retracting direction" until the motor stops automatically.
2. Using emergency handle, crank post clockwise by hand until fully retracted, then turn crank one turn counterclockwise.
3. Replace head on post and make sure that drive pin is engaged with post coupler. Tighten allen set screws.

## Maintenance

1. Every two years remove screws and cover and check grease condition. Use a HMP grease similar to Lubriplate 630AA and spread on gear teeth. Grease is not required on the nylon timing gears. No internal lubrication of the post is required, but an occasional external application of a silicone or WD-40 spray lubricant on the inner tube of the post when extended is permissible.
2. Before replacing the cover ensure that the plate and limit switch unit are located correctly.
3. Apply a little sealing compound around the mating surface of the gear cover and replace screws tightening them diagonally. Check synchronization if head has been removed from the post.
4. A little penetrating oil on the allen set screws occasionally will help prevent corrosion and difficult removal.

**Note:** Leave tow vehicle transmission in neutral when lifting both units. Dolly wheels are not recommended. Always retract stabilizing jacks before using your Super Jack under load.

## SUPER POWER JACK ASSEMBLY




## TIRES

Your trailer is equipped at the factory with name brand trailer tires. Airstream dealers cannot make adjustments to tires. This must be done by a dealer who handles that particular brand. If you ever have tire problems check the local telephone directory for the nearest dealer.

To get the maximum performance from your tires check the air pressure often, but only when the tires are cool. Never bleed out air immediately after driving. Recommended tire pressures vary with tire type and size. For pressures refer to the SPECIFICATION TABLE.

**WARNING:** It is also important to periodically check on the tightness of lug nuts. They should be tightened to a torque of 80 ft. pounds on forged aluminum wheels. Care should be taken at all times when handling the forged aluminum wheel because of possible damage to its appearance.

In warm climates park out of the sun whenever possible. In desert regions use tire covers to prevent ultra-violet deterioration to tires.

TO CHANGE A TIRE with a jack see the label affixed to the underbelly to the rear of the wheels. This label,  points to the plate riveted to the main frame where the jack head must be placed. A flat tire may also be changed without the aid of a jack. Drive the unit up a ramp 8" wide, 6" high and about 3 feet long at the base. Position the good tire on the ramp. This will raise the flat tire clear of the ground.



**WARNING:** Never attempt to change any tire without securely chocking remaining wheels. Never position yourself in a manner where a raised trailer can come down on you if it should become dislodged from a jack or ramp.

All tire and wheel assemblies are balanced at the factory. Be sure to rebalance the tire and wheel assemblies each time a tire is changed.

**WARNING:** When removing aluminum forged wheels from spindle, it is very important to mark them to assure the wheel is placed in the same position of the drum when reinstalling. If the aluminum forged wheel is to be mounted on a different drum it is important to sand all loose corrosion from the mating surfaces.

In an emergency remove the flat tire. The independent suspension of the Dura-Torque Axle allows four or six wheel units to be safely towed on three or five wheels for a short distance (100 miles maximum) and only at a low speed (30 MPH).

Be especially cautious in crossing holes or dips in the road. Under these circumstances it is good practice to set your rear view mirrors so that you can observe your tires at all time.

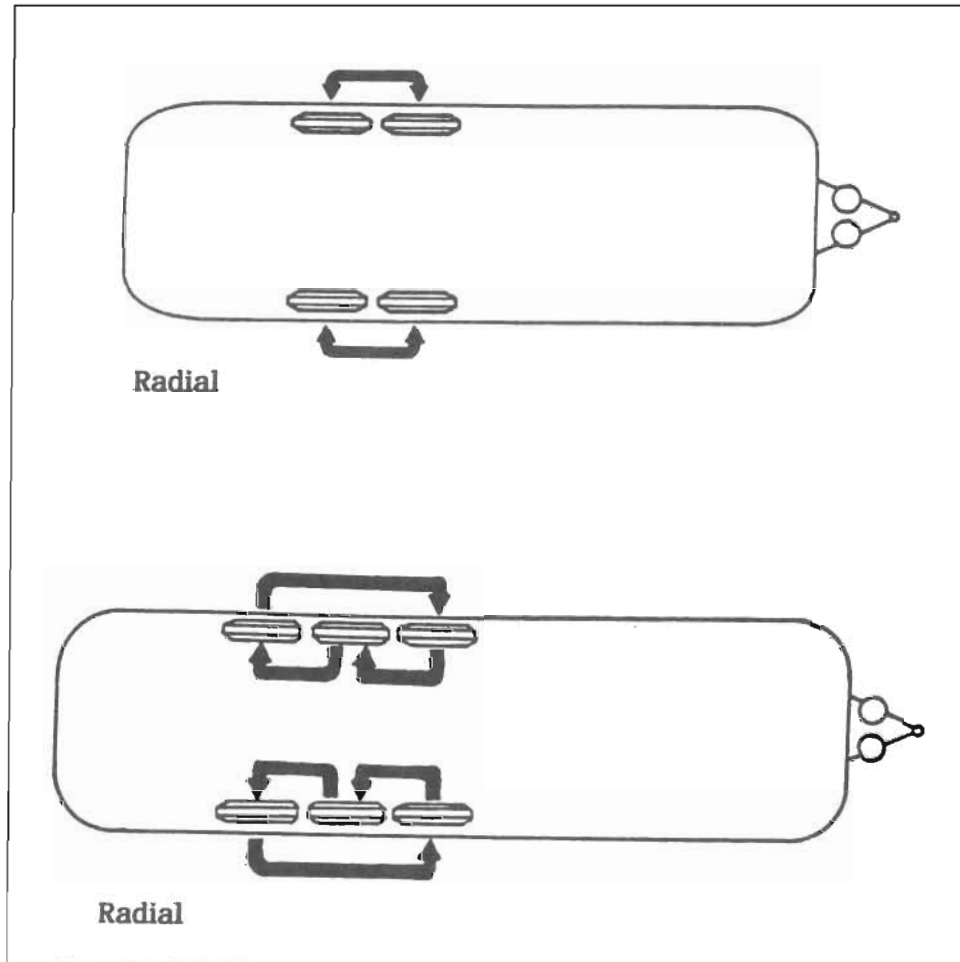
### **Tips on Tire Care**

Any tire, no matter how well constructed, may fail in use as a result of punctures, impact damage, improper inflation or other conditions resulting from use. Tire failures may create a risk of property damage or personal injury. To reduce the risk of tire failure we strongly recommend the following:

1. Check the pressure in your tires, including your spare, at least monthly when the tires are cool (after the vehicle has stopped three hours and then driven less than one mile.) Do not reduce pressure when tires are hot. Use a tire gauge to check pressure and maintain it at the recommended level.
2. Never overload your tires. The maximum load carrying capability of your tires is molded on the sidewall of the tire.
3. Check your tires frequently for scrapes, bulges, separations, cuts or snags resulting from use. See your tire dealer immediately if any such condition is discovered.
4. Never operate your vehicle in excess of lawful speeds or the maximum speeds justified by driving conditions, or in excess of speeds recommended for the tire you are using.
5. Make every effort to avoid running over objects that may damage the tire through impact or cutting, such as chuckholes, glass, metal, etc.
6. Never drive on smooth tires. Tires should be removed when  $\frac{2}{32}$ nds inch of tread depth remains. In most states it is illegal to drive with less than  $\frac{2}{32}$ nds inch remaining tread depth.

## TIRE ROTATION

(10,000 Mile Intervals)



## SPARE TIRE

The spare tire for Airstreams are stored under the front of the trailer.

On **Excelsas** and **Limiteds** with "stand-up" gas bottles access is gained by lowering the front of the tire carrier. The front handle of the tire carrier is a one inch tube protruding out from under the front A frame on the curbside. It is secured by a bracket and bolt along the inside of the A frame rail. Removing the bolts allows the front on the tire carrier to be lowered and the spare tire removed.

**Limited** trailers with "lay-down" gas bottles have a crank and cable mechanism holding the spare tire up against the bottom of the trailer.

When the LP bottle cover is removed a 3/4" nut is seen just in front of the gas bottles. Turning this 3/4" nut counter clockwise unwinds a cable and lowers the spare tire to the ground. A few extra turns will give some slack in the cable so the support bracket on the end of the cable can be turned enough to free the tire.

**CAUTION:** When the spare tire is replaced make sure the support bracket on the end of the cable is centered in the wheel.

## AXLE AND RUNNING GEAR ASSEMBLY

Each Airstream DURA TORQUE axle is aligned during manufacturing, and double checked on a random basis. Alignment after delivery is the customer's responsibility.

Hitting chuck holes or rough railroad tracks while going straight will only cause misalignment after the tire has been struck many repetitive times. Of course, a deep enough hole can affect the alignment immediately.

The worse culprit is curbs because they are normally struck at an angle. Surprisingly rear axles are occasionally damaged when people are attempting to park beside a curb and are backing up their trailer.

As you look under your trailer is it normal for the axle to be bent up in the middle. This bend is how the camber is obtained.

Toe-in is built into the axle by very slight bends in the axle tube on each end.

Should tire wear ever indicate misalignment check with your dealer for the nearest location having the proper equipment.

**CAUTION:** Never allow heat to be applied to the axle tube since the rubber providing the spring torsion action will be severely damaged.

### Dura Torque Axle Alignment Specifications

Toe-In each side 1/16"

Tolerance 1/16" + or -

Camber each side 3/4° Pos

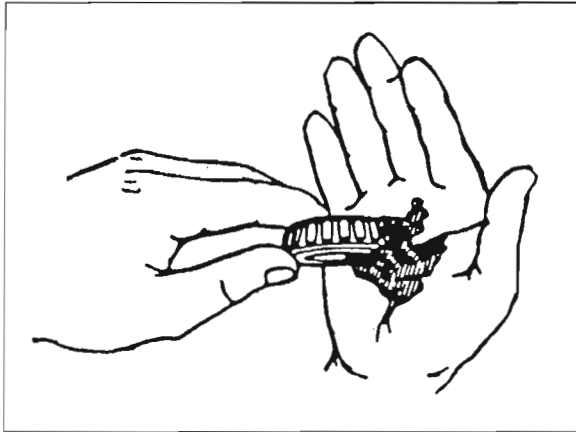
Tolerance 3/4° + or -

### Wheel Bearing Maintenance

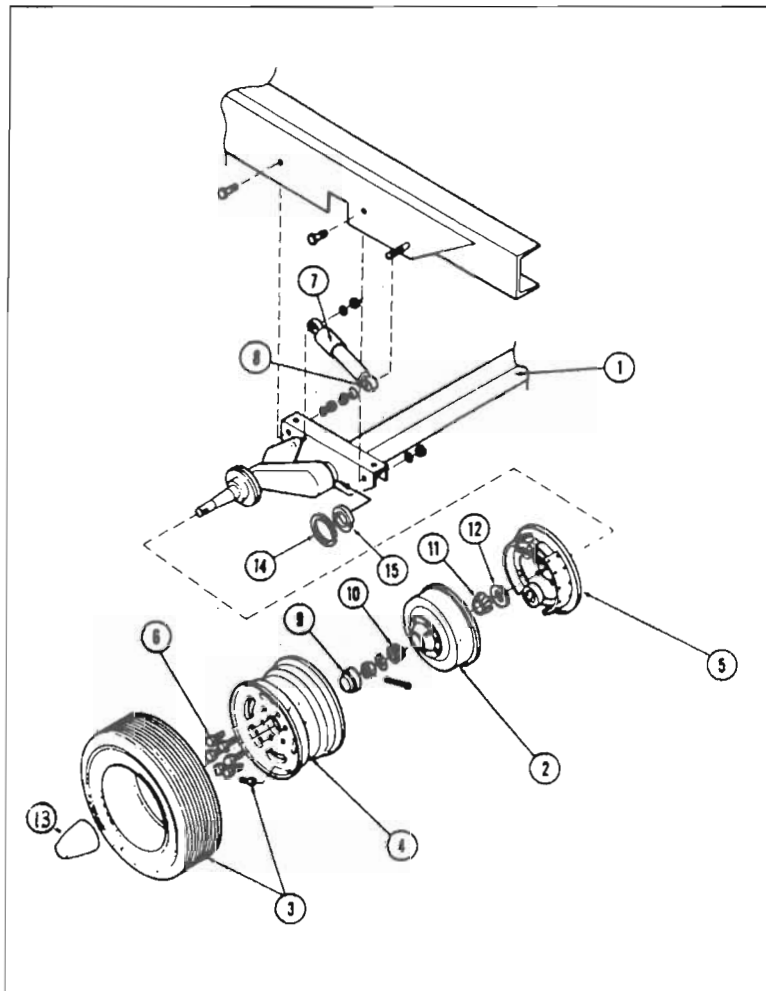
1. Jack trailer at marked jack location pad behind axle on main frame.
2. Remove hub cap or spindle cover, wheel and tire.
3. Remove dust cap.
4. Remove cotter pin.
5. Remove spindle nut and washer.
6. Remove bearings, hub and rotor.
7. Lay down hub and rotor with inside grease seal down. Knock out inner bearing and grease seal using wood or plastic dowel and hammer.
8. Clean all parts thoroughly with kerosene.
9. Check all bearings and races for chips or roughness of any kind. Any damaged component must be replaced.
10. Pack bearing with a good grease (No 2 grade-265 ASTM penetration or equivalent).
11. Install inner bearing.
12. Install new grease seal in hub and rotor using wooden or rawhide mallet.
13. Install hub and drum on spindle.

14. Install outer bearing.
15. Install washer and spindle nut.
16. While rotating the wheel, tighten the spindle nut with a 12" wrench until there is a slight tension. Then back off one notch and install cotter pin. There should now be from .001" to .010" end play in hub. If not, back off one more notch.
17. Check and retighten the lug bolts, if necessary, every 50 miles for the first 200 miles of travel. They should be tightened to torque of 75-85 ft. lbs. on aluminum wheels.

When greasing bearings by hand, place a glob of grease in the palm of one hand and push the large end of the bearing down into the grease (see illustration). Keep turning the bearing around and forcing it down through the grease until the grease is extruded up through the opposite end. Wipe the extra grease in your hand around the outside of the bearing. It's not necessary to fill the hub and dust cap with grease.



#### AXLE AND RUNNING GEAR ASSEMBLY

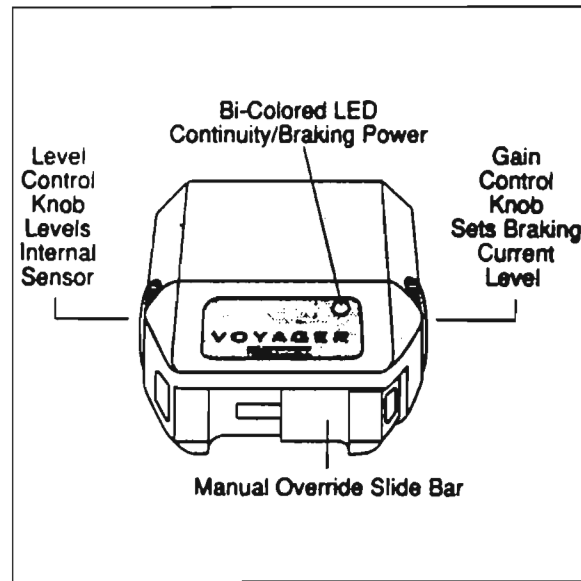


1. Dura Torque Axle
2. Unicast Hub and Drum
3. Valve Stem
4. Wheel
5. Brake Set
6. Lug Nuts
7. Shock Absorber
8. Shock Absorber Bushing
9. Dust Cover
10. Outer Bearing
11. Inner Bearing
12. Grease Seal
13. Spindle Cover
14. Retainer Ring
15. Nylon Bushing

## ELECTRIC BRAKES

A CONTROLLER installed in your tow vehicle will synchronize the trailer brakes with your car brakes. It is designed to apply the trailer brakes whenever the tow vehicle brakes are applied.

### TYPICAL ELECTRONIC CONTROLLER



On **hydraulic controllers**, handle adjustment affects the rate of application of the trailer brakes. This adjustment has no bearing on the maximum braking capacity of the trailer brakes. Because of the wide variety of towing vehicles and trailers it is necessary to balance the trailer brakes with the tow vehicle brakes to provide for a safe, comfortable stop. This adjustment should be made to provide for a slight lead of the trailer brakes over the tow vehicle brakes. Turning the handle clockwise will decrease the rate of application of the trailer brakes, while counterclockwise will increase the rate of application. When the desired setting is reached, the controller will hold the adjustment, but may be varied at any time by rotating the handle as described above. After this adjustment there should be no sensation of the trailer pushing the car during a stop, nor should there be an excessive sensation of the trailer pulling the car during a stop. **ELECTRONIC CONTROLLERS are inertially activated. The controller senses deceleration and generates an output which reflects the inertia sensed. When your stationary, the controller does not apply the brakes unless the manual slide bar is activated.**

**NOTE:** Study all material provided with your particular brake control. If you don't understand the information, have the installer explain the information to you or call the manufacturer of the controller.

In THE EVENT OF AN ACCIDENTAL SEPARATION of the tow car and trailer, the BREAKAWAY SWITCH will set and lock the trailer brakes for a sufficient length of time to stop the trailer. The switch is activated when the small pin in the front of the unit is pulled out by the wire attached to it and to the car. **THIS PIN SHOULD BE PULLED OUT, LUBRICATED WITH LIGHT HOUSEHOLD OIL AND REPLACED EVERY 90 DAYS.**

To prevent corrosion within the breakaway switch, pull the switch's pin straight forward and spray the inside of the switch through the hole with an electric contact cleaner (such as Spra-Kleen) and reinsert the pin. A drop of light household oil on the groove near the base of the pin will allow the pin to operate freely. **WHEN THE TRAILER IS CONNECTED TO THE TOW CAR, THE BREAK-AWAY SWITCH LOOP SHOULD BE ATTACHED TO THE PERMANENT FRAME OF YOUR HITCH.** When disconnecting trailer from tow vehicle remove wire loop from the frame. **DO NOT REMOVE PIN FROM SWITCH BECAUSE THIS WILL APPLY THE TRAILER BRAKES.**

**CAUTION:** Do not use break-away switch for parking brake.



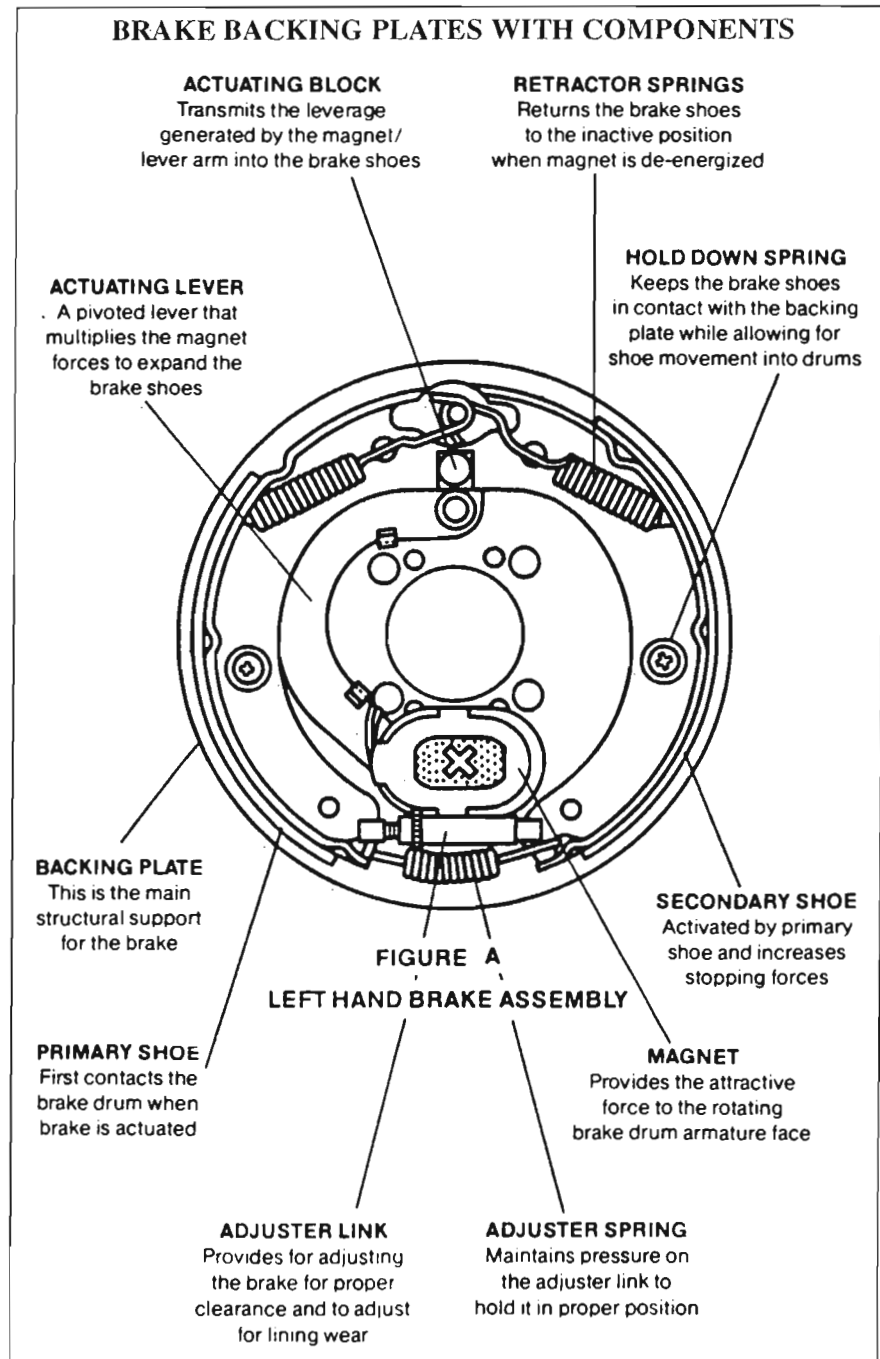
## HOW ELECTRIC BRAKES WORK

The electric brakes on your trailer are similar to the drum brakes on your automobile. The basic difference is that your automotive brakes are actuated by hydraulic pressure while your electric trailer brakes are actuated by an electromagnet. With all of the brake components connected into the system, the brakes will operate as follows: (See Figure A).

When electrical current is fed into the system by the controller, it flows through the electromagnets in the brakes. The high capacity electromagnets are energized and are attracted to the rotating armature surface of the drums which moves the actuating levers in the direction that the drums are turning. The resulting force causes the actuating cam block at the shoe end of the lever to push the primary shoe out against the inside surface of the brake drum. The force

generated by the primary shoe acting through the adjuster link then moves the secondary shoe out into contact with the brake drum.

Increasing the current flow to the electromagnet causes the magnet to grip the armature surface of the brake drum more firmly. This results in increasing the pressure against the shoes and brake drums until the desired stop is accomplished.



## HOW ELECTRIC BRAKES HELP

Electrically actuated brakes have several advantageous features over other brake actuation systems.

1. They can be electrically adjusted to provide the correct braking capability for varying road and load conditions.
2. They can be modulated to provide more or less braking force, thus easing the brake load on the towing vehicle.
3. They have relatively no lag time from the moment the tow vehicle's brakes are actuated until the trailer brakes are actuated.
4. They provide a separate braking system to that of the tow vehicle which can be of benefit in the event of tow vehicle brake failure.

## HOW TO USE YOUR ELECTRIC BRAKES PROPERLY

Your trailer brakes are designed to work in synchronization with your tow vehicle brakes. Never use your tow vehicle or trailer brakes alone to stop the combined load.

Your trailer and tow vehicle will seldom have the right amperage flow to the brake magnets to give you comfortable, safe braking unless you make proper brake system adjustments. Changing trailer load and driving conditions as well as uneven alternator and battery output can mean unstable current flow to your brake magnets. It is therefore imperative that you maintain and adjust your brakes as set forth in this manual, use a properly modulated brake controller, and perform the synchronization procedure noted below.

In addition to the synchronization adjustment detailed below, electric brake controllers provide a modulation function that varies the current to the electric brakes with the pressure on the brake pedal. It is important that your brake controller provide approximately 2 volts to the braking system when the brake pedal is first depressed and gradually increase the voltage to 12 volts as brake pedal pressure is increased. If the controller "jumps" immediately to a high voltage output, even during a gradual stop, then the electric brakes will always be fully energized and will result in harsh brakes and potential brake lockup.

Proper synchronization of tow vehicle to trailer braking can only be accomplished by road testing. Brake "lockup, grabbiness, or harshness" is quite often lack of synchronization between the tow vehicle and the trailer being towed, too high of a threshold voltage (over 2 volts), or underadjusted brakes.

There are two synchronization adjustments available:

1. **System Resistor** - regulates the maximum braking power of the trailer brakes.
2. **Brake Controller** - controls the tow vehicle brake line pressure at which the controller will begin to pass current to the trailer brakes.

Before any synchronization adjustments are made, your trailer brakes should be burnished-in by making 10-12 full stops from approximately 20 mph. This allows the brake shoes and magnets to slightly "wear-in" to the drum surfaces.

## TO SYNCHRONIZE:

Start by making sure the trailer brakes are properly adjusted. Set the System Resistor in the middle of the coil and the Controller adjustment near the center of its setting.

**CAUTION: BEFORE MAKING ROAD TESTS, MAKE SURE THE AREA IS CLEAR OF VEHICULAR AND PEDESTRIAN TRAFFIC.**

Make hard stops from 20 mph on a dry paved road free of sand and gravel. If the trailer brakes lock and slide, add more resistance to the circuit with the System Resistor. If they do not slide, take resistance out of the circuit. Adjust the resistor just to the point of brake lockup and wheel skid.

Make a number of 30 mph hard stops to check braking at this speed. If the trailer brakes lag behind the tow vehicle, turn the Controller adjustment in the direction for more braking. If the trailer brakes come in ahead of the tow vehicle brakes, turn the Controller adjustment in the opposite direction. For best braking performance, it is recommended that the Controller be adjusted to allow the trailer brakes to come in just slightly ahead of the tow vehicle brakes. When proper synchronization is achieved there will be no sensation of the trailer jerking or "pushing" the tow vehicle during braking.

When this adjustment is complete, make a hard stop or two from 20 mph to check for wheel lockup and whether further fine tuning of the System Resistor is required.

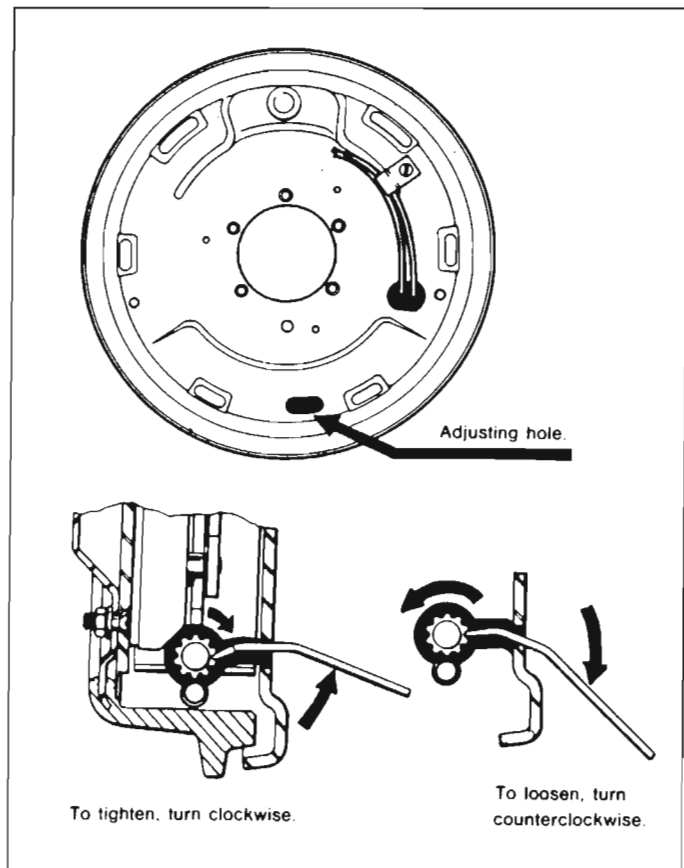
## GENERAL MAINTENANCE

### BRAKE ADJUSTMENT

Brakes should be adjusted (1) after the first 200 miles of operation when the brake shoes and drums have "seated", (2) at 3000 mile intervals, (3) or as use and performance requires. The brakes should be adjusted in the following manner:

1. Jack up trailer and secure on adequate capacity jack stands. Follow trailer manufacturers recommendations for lifting and supporting the unit. Check that the wheel and drum rotates freely.
2. Remove the adjusting hole cover from the adjusting slot on the bottom of the brake backing plate.
3. With a screwdriver or standard adjusting tool rotate the starwheel of the adjuster assembly to expand the brake shoes. (NOTE: With drop spindle axles a modified adjusting tool with about an 80 degree angle should be used. Sears Craftsman #4736 or K-D #295 are recommended.) Adjust the brake shoes out until the pressure of the linings against the drum makes the wheel very difficult to turn.
4. Then rotate the starwheel in the opposite direction until the wheel turns freely with a slight lining drag.
5. Replace the adjusting hole cover and lower the wheel to the ground.
6. Repeat the above procedure on all brakes.

**CAUTION: NEVER CRAWL UNDER YOUR TRAILER UNLESS IT IS RESTING ON PROPERLY PLACED JACK STANDS.**



## BRAKE CLEANING, INSPECTION AND LUBRICATION

Your trailer brakes must be inspected and serviced at yearly intervals or more often as use and performance require. Magnets and shoes must be changed when they become worn or scored thereby preventing adequate vehicle braking.

### Cleaning and Inspection

Clean the backing plate, magnet arm, magnet, and brake shoes. Make certain that all the parts removed are replaced in the same brake and drum assembly. Inspect the magnet arm for any loose or worn parts. Check shoe return springs, hold down springs, and adjuster springs for stretch or deformation and replace if required.

#### CAUTION: ASBESTOS DUST HAZARD

SINCE MOST BRAKE SHOE FRICTION MATERIALS NORMALLY CONTAIN ASBESTOS, CERTAIN PRECAUTIONS NEED TO BE TAKEN WHEN SERVICING BRAKES.

1. AVOID CREATING OR BREATHING DUST.
2. AVOID MACHINING, FILING, OR GRINDING THE BRAKE LININGS.
3. DO NOT USE COMPRESSED AIR OR DRY BRUSHING FOR CLEANING. (DUST CAN BE REMOVED WITH A DAMP BRUSH.)

### Brake Lubrication

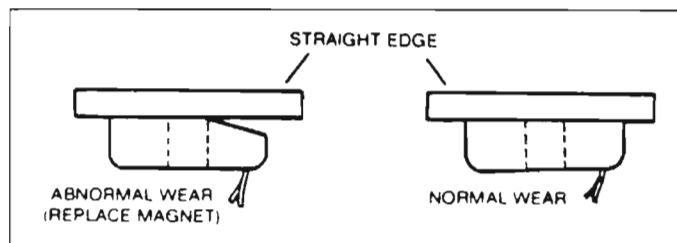
Before reassembling apply a light film of Lubriplate or similar grease on the brake anchor pin, the actuating arm bushing and pin, and the areas on the backing plate that are in contact with the brake shoes and magnet lever arm. Apply a light film of oil on the actuating block mounted on the actuating arm.

**CAUTION:** DO NOT GET GREASE OR OIL ON THE BRAKE LININGS OR DRUMS.

### MAGNETS:

Your electric brakes are equipped with high quality electromagnets that are designed to provide the proper input force and friction characteristics. Your magnets should be inspected and replaced if worn unevenly or abnormally. As indicated below a straightedge should be used to check wear.

Even if wear is normal as indicated by your straightedge the magnets should be replaced if any part of the magnet coil has become visible through the friction material facing of the magnet. It is also recommended that the drum armature surface be re-faced when replacing magnets. (See Brake Drum Section) Magnets should also be replaced in pairs (both sides of an axle). Use only genuine Dexter replacement parts when replacing your magnets.



## SHOES AND LININGS

A simple visual inspection of your brake linings will tell if they are usable. Replacement is necessary if the lining is worn thin (1/16" or less), contaminated with grease or oil, or abnormally scored or gouged. It is important to replace both shoes on each brake and both brakes of the same axle. This is necessary to retain the "balance" of your brakes. Noted below are the Dexter replacement shoe and lining kits which will contain the specific instructions necessary for proper replacement.

## TROUBLE SHOOTING

Most brake malfunctions that cannot be corrected by either brake adjustment or synchronization adjustments can generally be traced to electrical system failures. Mechanical causes are ordinarily obvious, i.e. bent or broken parts, worn out linings or magnets, seized lever arms or shoes, scored drums, loose parts, etc. Electrically, a voltmeter and ammeter are essential for proper trouble shooting

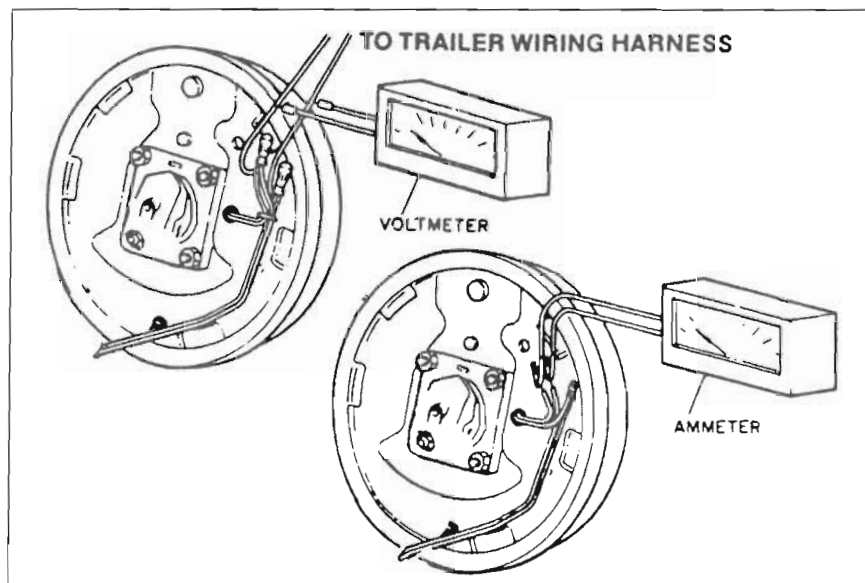
## HOW TO MEASURE VOLTAGE

System voltage is measured at the magnets by connecting the voltmeter to the two magnet lead wires at any brake. This may be accomplished by using a pin probe inserted through the insulation of the wires dropping down from the chassis or by cutting the wires. The engine of the towing vehicle should be running when checking the voltage so that a low battery will not affect the readings.

Voltage in the system should begin at 0 volts and, as the controller bar is slowly actuated, should gradually increase to about 12 volts. This is referred to as modulation. No modulation means that when the controller begins to apply voltage to the brakes it applies an immediate high voltage which causes the brakes to apply instantaneous maximum power.

The threshold voltage of a controller is the voltage applied to the brakes when the controller first turns on. The lower the threshold voltage the smoother the brakes will operate. Too high of a threshold voltage (in excess of 2 volts as quite often found in heavy duty controllers) can cause grabby harsh brakes.

## HOW TO MEASURE AMPERAGE



System amperage is the amperage being drawn by all brakes on the trailer. The engine of the towing vehicle should be running when checking amperage. One place to measure system amperage is at the BLUE wire of the controller which is the output to the brakes. The BLUE wire must be disconnected and the ammeter put into the line. System amperage draw should be as noted in the table following. Make sure your ammeter has sufficient capacity and note polarity to prevent damaging your ammeter. If a resistor is used in the brake system it must be set at zero or by-passed completely to obtain the maximum amperage reading.

Individual amperage draw can be measured by inserting the ammeter in the line at the magnet you want to check. Disconnect one of the magnet lead wire connectors and attach the ammeter between the two wires. Make sure that the wires are properly reconnected and sealed after testing is completed.

By far, the most common electrical problem is low or no voltage and amperage at the brakes. Common causes of this condition are:

1. Poor electrical connections
2. Open circuits
3. Insufficient wire size
4. Broken wires
5. Blown fuses (Fusing of brakes is not recommended)
6. Improperly functioning controllers or resistors

Another common electrical problem is shorted or partially shorted circuits (indicated by abnormally high system amperage). These are occasionally the most difficult to find. Possible causes are:

1. Shorted magnet coils
2. Defective controllers
3. Bare wires contacting a grounded object

Finding the system short is a matter of isolation. If the high amperage reading drops to zero by unplugging the trailer, then the short is in the trailer. If the amperage reading remains high with all the brake magnets disconnected, the short is in the trailer wiring.

All electrical troubleshooting procedures should start at the controller. Most complaints regarding brake harshness or malfunction are traceable to improperly adjusted or functioning controllers. See your controller manufacturer's data for proper adjustment and testing procedures. If the voltage and amperage is not satisfactory, proceed on to the connector and then to the individual magnets to isolate the problem source. 12 volts output at the controller should equate to 10.5 volts minimum at each magnet. Nominal system amperage at 12 volts with cold magnets, system resistor at zero and controller at maximum gain should be as detailed in the following chart:

BRAKE SIZE	AMPS/ MAGNET	TWO BRAKES	FOUR BRAKES	SIX BRAKES
10 x 2 1/4	3.0	6.0	12.0	18.0
12 x 2	3.0	6.0	12.0	18.0

**NOTE: THESE AMPERAGE LEVELS WILL DROP AS THE MAGNETS HEAT UP**

## TROUBLE SHOOTING GUIDE

SYMPTOM	CAUSES	REMEDIES
No Brakes	Open circuits Severe underadjustment Faulty controller Short circuits	Find & correct Adjust brakes Test & correct Find & correct
Weak Brakes	Grease or oil on magnets or linings Corroded connections  Worn linings or magnets Scored or grooved brake drums Improper synchronization Underadjustment Glazed linings Overloaded trailer	Clean or replace Clean and correct cause of corrosion Replace Machine or replace Correct Adjust brakes Reburnish or replace Correct
Locking Brakes	Underadjustment Improper synchronization Faulty controller Loose, bent, or broken Brake components Out of round brake drums Insufficient wheel load	Adjust Correct Test & Correct  Replace components Machine or replace Adjust system resistor and synchronize
Intermittent Brakes	Faulty controller Broken wires Loose connections	Test & correct Repair or replace Find & repair
Brakes pull to one side	Incorrect adjustment Grease or oil on linings or magnet Broken wires Bad connections	Adjust  Clean or replace Find & repair Find & repair
Harsh brakes	Under adjustment Improper synchronization Improper controller Faulty controller	Adjust Correct Change Test & correct
Noisy brakes	Underadjustment Lack of lubrication Broken brake components Incorrect brake components	Adjust brakes Lubricate Replace component Correct
Surging Brakes	Grease or oil on linings or magnet Out of round or cracked brake drums Faulty controller	Clean or replace Machine or replace Test & correct
Dragging Brakes	Overadjustment Out of round brake drums Incorrect brake components Loose, bent, or broken brake components Faulty breakaway switch Loose wheel bearing adjustment Bent spindle	Readjust Machine or replace Replace Replace Repair or Replace Adjust Replace

## HUB REMOVAL

Whenever the hub equipment on your axle must be removed for inspection or maintenance the following procedure should be utilized.

1. Elevate and support the trailer unit per manufacturers' instructions.
2. Remove the wheel,
3. Remove the grease cap by carefully prying progressively around the flange of the cap. If the hub is an oil lube type then the cap can be removed by unscrewing it counter-clockwise while holding the hub stationary
4. Remove the cotter pin from the spindle nut or, in the case of E-Z Lube versions, bend the locking tang to the free position.
5. Unscrew the spindle nut (counter-clockwise) and remove the spindle washer
6. Remove the hub from the spindle, being careful not to allow the outer bearing cone to fall out. The inner bearing cone will be retained by the seal.

## BRAKE DRUM INSPECTION

There are two areas of the brake drum that are subject to wear and require periodic inspection. These two areas are the drum surface where the brake shoes make contact during stopping and the armature surface where the magnet contacts.

The drum surface should be inspected for excessive wear or heavy scoring. If worn more than .020" oversized, or the drum has worn out of round by more than .015", then the drum surface should be turned. If scoring or other wear is greater than .090", the drum must be replaced. When turning the drum surface the maximum rebores diameter is as follows:

10" Brake Drum	—	10.090"
12" Brake Drum	—	12.090"

The machined inner surface of the brake drum that contacts the brake magnet is called the armature surface. If the armature surface is scored or worn unevenly it should be refaced to a 120 microinch finish by removing not more than .030" of material. To insure proper contact between the armature face and the magnet face, the magnets should be replaced whenever the armature surface is refaced and the armature surface should be refaced whenever the magnets are replaced.

**NOTE:** IT IS IMPORTANT TO PROTECT THE WHEEL BEARING BORES FROM METALLIC CHIPS AND CONTAMINATION WHICH RESULT FROM DRUM TURNING OR ARMATURE REFACING OPERATIONS. MAKE CERTAIN THAT THE WHEEL BEARING CAVITIES ARE CLEAN AND FREE OF CONTAMINATION BEFORE RE-INSTALLING BEARINGS AND SEALS. THE PRESENCE OF THESE CONTAMINANTS WILL CAUSE PREMATURE WHEEL BEARING FAILURE.



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## INTERIOR

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The interior of all Airstream trailers has been designed for comfort, convenience, durability and appearance. How you use it and how you take care of it naturally depends on you. However, if you learn to operate the interior components and take care of them and the trailer properly, this knowledge will add to your pleasure as well as the long life of your trailer.

All materials should be professionally dry cleaned to remove any overall soiled condition. However, these materials may be spot cleaned using the cleaning code instructions as listed. Sample swatches are furnished to our dealers. The dealer will be able to give you the name of the fabrics used in your particular trailer. Each swatch will show the cleaning code in parenthesis.

### **Upholstery**

The following are the cleaning code instructions for the various fabrics used in the Airstream trailers:

#### Code WS

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 dry cleaning or washing. Any tumble cleaning method can destroy the backing, shrink or otherwise damage upholstery fabric.

**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.

## **Draperies**

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

Draperies are removed by unsnapping from the wall, removing a screw or pop rivet from the end of the curtain track, and sliding them out. The pop rivets are removed by drilling through the head with a 1/8" drill bit.

To prevent damage to the draperies while traveling, the VENETIAN TYPE BLINDS should be lowered, secured at the bottom and the slats turned vertically.

## **Carpet**

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

## **Hardwood Flooring (Optional)**

Daily care is by vacuuming. Occasionally waxing with a non-water base wax will help extend the life of the floor.

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

## **Counter Area**

The counter areas around the sink are of a high-pressure laminate or corian 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.

Corian counters can be repaired by sanding minor damaged areas. The color of the material is constant and not just a surface coat.

## **Vinyl Covering**

Routine cleaning is done by damp wiping with mild detergent. More thorough cleaning can be performed by using any of the automotive cleaners designed for vinyl car seats and dashes.

## **Sinks**

Be careful in using your porcelain sink. Dropping objects on it can chip the porcelain. Cleaning can be accomplished using normal household cleaners. Stubborn stains can be removed by using scouring powder if necessary.

### **Shower Stall**

To clean your ULTRA/GLASS 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.

### **Lounges**

To convert the sofa to a bed, lift up on the front of the seat and pull out.

The large front drawers can be secured by engaging the “hide-a-lock”, accessible by raising the skirting on the drawer face. Once found it is easy to open the slide bolt arrangement. The hide-a-lock can be used for securing the drawer for travel, or to keep casual lookers out of your belongings.

### **Dinette**

The dinette is made into a bed by raising up on the front of the table and folding the table leg up against the bottom of the leaf. As the table is raised it will unhook from the upper wall brackets. Once it is unhooked it can be pulled out and the wall hinge will let it be lowered on the supports of the dinette seats. The back rest of the seats are placed over the table to complete the conversion.

### **Table**

To open the folding table, lift into a horizontal position and pull the table leg down toward the vertical position until it snaps into place. The leg is hinged at the front edge of the table and is held against the bottom of the table with Velcro. To extend into the double leaf position, lift the table slightly so the leg clears the carpet, and slide the leg and center support out toward the center of the trailer. The leaf then unfolds and rests against the leg support.

Airstream recommends that during travel the table be left in the upright position.

### **Central Control Panel**

The solid state central control panel has two different configurations. The Deluxe panels include two LP tank gauges. The water and holding tanks and battery check is common to both panels. Also common are the water pump switch, range hood light and range hood fan. To check the tank capacities depress the button marked test and read the status. Tank 1 is the black tank and tank 2 is the grey (drain water) tank.

### **Battery Condition Tester**

The battery condition tester, used when not plugged into 110 volt power, will indicate whether the trailer batteries are in good, fair or poor condition. When they show weak or bad condition you should take every reasonable step to conserve power by using as few lights as possible and switching off appliances. The battery should be charged as soon as practical with the tow vehicle charging system, or by connection to 110 volt power.

## **Water Pump Switch**

The water pump switch operates the pump. Once the switch is turned on the pump will run until the water pressure reaches about 35 psi. At this point an internal pressure switch will shut it off. When a faucet is opened the water pressure will drop and the pump will start to run again. The water pump switch should be turned off when you are on city water or when the trailer is left unattended.

## **Bathroom Exhaust Fan**

The bathroom exhaust fan is in the bathroom ceiling and is opened by pushing up on the handle running across the fan opening.

## **Telephone Shower Head**

The telephone shower head is designed to give maximum flexibility in usage, and provides for water saving techniques when using your trailer on self containment. It can be held in the hand and moved about the body. Normally the best water conservation procedure is to wet the entire body and then turn the water off. Apply soap, lather thoroughly, then rinse the soap off. The telephone shower head is also used to fill the tub for taking a bath. When you have finished using the shower be sure to shut the water off at the faucet.

## **Bath Area Remote Switches**

Two remote switches for appliances are located on the bathroom wall. One is for the water pump, and duplicates the pump switch on the central control panel. Either pump switch may be used to turn the pump on or off at any time.

The second remote switch, with a red indicator, is for lighting the water heater.

## **Zone Heating**

The optional zone heating is two separate furnaces and thermostats. In winter months, when leaving the heat on low to prevent freeze-ups, be sure both furnaces are used. Detailed information on the operation of the furnaces is included under the Appliance Section of this manual and in the literature supplied with your trailer.

## **Ceiling Light Fixtures, Incandescent**

The ceiling light fixture has a high-low switch located in the center of the fixture. By sliding the switch to the first position only one half of the light is turned on. Moving the switch further will turn the entire light on. The LENS may be removed by gently squeezing in the middle and pulling down. During cold weather it is a good idea to leave the light on a few minutes prior to removing the lens.

Lights in the forward section may also be controlled by a wall switch just inside the door.

## **Fluorescent Light Bulbs**

Fluorescent light bulbs are removed by rotating one quarter turn and bringing the bulb straight out of the fixture. This would be straight out on bed lights and straight down on ceiling lights.

## Fresh Air Vents

The fresh air vents are operated by a control handle. Turning clockwise will raise the vent and at the maximum extension, vents with fans will automatically turn on. For maximum air without fan, open until fan starts and back up just enough to turn fan off. Turning counterclockwise will close the vent. Screens should be removed for periodic cleaning.

Information on the optional high volume roof vent may be found in the appliance section of this book.

## Storage

The kitchen cabinet should have the heaviest items on the bottom and lighter items overhead. After loading you should have the skillets and can goods on the floor or bottom shelf, and the cereals and crackers in the overhead rooflocker. Use the unbreakable type plates and saucers, and consider storing your dish towels around them. Better yet, use paper plates. Who wants to wash dishes when on a trip or vacation?

A good place to store heavy items is in the front drawer assembly. It is rated for a 100 lb. capacity, plus adding weight to the front of the trailer may even improve towing slightly.

Clothes hung in wardrobes should be kept on hangers that snap over the clothes rods to keep them from “jumping” off on rough roads. Evening dresses should be kept in the plastic bags like dry cleaning businesses use. No matter how hard you try, if you travel a long dusty section of road the dust will work its way into the trailer and soil clothes. Try to avoid large bulky coats. Layers of lighter clothing will usually keep you warmer, are more versatile and easier to store.

Some additional storage is available under the shelf in the bottom of the wardrobe, but you must be sure it is loaded so the drain lines and heat ducts can't be damaged.

**WARNING:** Keep flammable material away from the furnace.

Remember, heavy items should be stored low and toward the front. Lighter items in the rear and overhead cabinets.

## 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.**

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

**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 in 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).

## 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 air 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 paperwork of your unit.

**WARNING:** Have a professional check your system if you have any doubts.

## **FIRE EXTINGUISHER**

The fire extinguisher just inside your forward door should have the charge checked on a regular basis. Make sure your family, especially the cook, knows how to release the extinguisher storage bracket, and how to properly operate the extinguisher. If you find the directions on the extinguisher unclear, check with your local fire department. We're sure they will be happy to assist you and your family.

## **SAFETY:**

Many things can be construed as safety related, but the most important is your common sense. If you are careless with matches, cigarettes, flammable material or any other hazardous material, we are sure you realize your potential for accidents is greatly increased.

## EXTERIOR WINDOWS

The windows in your trailer are safety glass. To open: release the two lever locks at the bottom, lift up on the two side operator handles until the window is in the desired position, and place the operators into one of three positioning slots on the side of the frames. To lock the windows, reverse this procedure.

**Note:** Some windows are designed as emergency escape exits. The rubber spline holding the screen in place is looped so it can be pulled out in one swift motion.

**You and all your family should practice escape procedures so they can be rapidly accomplished even in total darkness.**

**WARNING:** Never park your trailer so the escape windows cannot be easily used for emergency exits.

These windows are cleaned in the same manner that ordinary windows are. Clean the seals with a damp cloth or mild detergent every three to six months, taking care not to use strong solvents as they will damage the seals. A coat of natural silicone lubricant applied after the seal has dried will keep it flexible. Spread the lubricant evenly with a brush or finger, working it into the surface. This is a good practice for all rubber seals in your Airstream. For replacement of a damaged window contact an Airstream Service Center or the factory.

## SCREENS

Your plastic screens are easy to maintain. Just clean occasionally with a damp cloth. **Note:** They will melt at the point of contact if touched by a cigarette.

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## PLUMBING SYSTEM

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### LIQUID PETROLEUM GAS (LPG)

#### FILL VALVE

Your trailer is equipped with LP tank fill valves called "RV Type I Acme" connection. The large, green, nylon swivel nut is a right hand thread and is designed for **hand operation only**.

The valve features an internal spring-loaded module that will not allow gas to flow from the cylinder until a positive seal has been made at the connection. The valve outlet has 1-5/16" Acme threads on the outlet exterior and female POL, left-handed threads on its interior. This feature allows for connection of the new wrenchless, right-handed, Acme RV connection and still accommodates the standard left-handed POL fittings used for filling propane cylinders.

The mating, green swivel nut and brass nipple also incorporates new features: the green nylon nut swivels on a black bushing that is heat sensitive. Between 240° F and 300° F the bushing will yield (melt) allowing the spring-loaded module in the valve to push the brass nipple back (approximately 1/4") closing the module and stopping the flow of gas from the cylinder. Inside the brass nipple is a flow-limiting device designed to sense excessive gas flow. If an excessive flow is sensed, the flow-limiting device shuts the flow down to a maximum of 10 SCFH (Standard Cubic Feet per Hour) or less. This is also referred to as the by-pass flow.

By-pass flow is extremely important in the proper operation of this connection. The flow-limiting device may activate if the cylinder valve is opened quickly. When all appliances are off, the by-pass flow allows the pressure downstream from the flow-limiting device to equalize. When pressure is equalized, the flow-limiting device will supply normal flow to the system. Equalization occurs in approximately 5 seconds and in most cases goes completely unnoticed. If, however, an appliance is left on or there is a leak or open flow in the system, the by-pass pressure will not be able to equalize and allow the flow-limiting device to re-open. Symptoms of this condition would be appliances that light but have lower than normal flame or starve out from lack of gas; a substantial reduction in the flame when another appliance is operating; or pilots that are difficult to light. If this should happen, the following steps should eliminate the condition:

1. Close LP cylinder valve.
2. Extinguish all flames and smoking materials
3. Be sure all gas appliances, including their pilot lights, are off.
4. Open LP cylinder valve slowly. DO NOT SNAP OPEN.
5. Wait at least 15 seconds before lighting appliances.
6. If operational difficulties continue, there may be a leak in the system. Immediately close the LP cylinder valve and have the system inspected by a qualified RV service technician.

**Again, make sure all appliances are off before opening propane cylinder valves.**

**Exception: when reconnecting a full cylinder to an auto changeover regulator it is not necessary to shut off the appliances or close the valve of the cylinder already in service.**

<p><b>WARNING: LEAKING LP GAS MAY IGNITE CAUSING A FIRE OR EXPLOSION WHICH COULD RESULT IN SERIOUS BODILY INJURY, PROPERTY DAMAGE OR DEATH!</b></p>
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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 are doing extensive cooking, 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 two to three weeks service from each tank.

## AUTOMATIC GAS REGULATOR

All models are equipped with an automatic gas regulator. Both tanks are connected to this regulator. Open both tank valves completely, then close about 1/4 turn. This will allow you to easily check to see if valves are open or closed.

When the gas is turned on it is drawn from only one tank at a time. When the tank being used is depleted the regulator automatically switches to the full tank. An indicator in the regulator knob points toward the tank which was being used to give you a visual reminder when one tank is empty.

**Note:** The tank in use is not completely empty until the red warning flag is fully visible in the indicator window. The empty tank can be removed for refilling without disturbing the tank being used.

**WARNING:** 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.

**CAUTION:** The LPG bottles are securely mounted on the front "A" frame of your trailer. If these bottles must be removed for service or replacement it is important that they be reinstalled correctly in order to prevent any possibility of their falling off or becoming dislodged during travel.

## VERTICAL BOTTLES

The following step by step procedure gives you the proper method of removing and installing these bottles:

1. Turn the knob on your automatic regulator so the arrow points to the tank opposite the one to be removed. Shut off the gas valve on the bottle to be removed.
2. Disconnect the rubber gas line at the bottle to be removed. (This fitting has a left hand thread and turns in the opposite direction to most threaded fittings.)
3. Turn the large clamping "T" handle counterclockwise until the hold down bracket is loose enough to remove the bottle. If your trailer is equipped with a gas bottle cover the "T" handle must be removed, and then remove the cover before removing the bottle.

DO NOT REMOVE THE CENTER HOLD DOWN ROD.

### To Install

1. Place the bottle in position on the "A" frame and bottle crossmember so that it rests on the upper collar of both bottles with the collar rims engaged in the grooves on the underside of the bracket. If your trailer is equipped with a gas bottle cover it should be positioned over the bottles next. Make sure the hold down rod projects up through the hole in the shroud center bracket.
2. Replace the "T" handle and tighten down until the bottles are held firmly in place.
3. Turn on gas shut off valves and test all fittings with a soap suds or detergent solution and watch for bubbles.

If you have allowed both tanks 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 will be able to 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.

## **HORIZONTAL BOTTLES**

### **LP Tank Cover**

The LPG tank cover is easily removed by unscrewing the plastic knob and bracket holding the front of the cover. Then slide the cover forward until it is free.

### **Tank Removal**

To remove the tank shut the valve firmly; but, excessive pressure should not be required. Next remove the hose connection at the valve.

The large, green, nylon connector is a standard right hand tread.

**CAUTION: Only hand pressure should ever be used on these fittings.**

Raise the latch handle on the hold down strap until the hook can be freed. After noting the direction the bottles are turned, lift up slightly and roll out until it can be lifted clear of the trailer frame.

**WARNING: Horizontal bottles must only be replaced with horizontal bottles of same design.**

**WARNING: Your LP tanks must be filled as directed by the tank manufacturer. Instructions are located on a decal near the fill valve. The decal must not be defaced.**

**WARNING: Your LP tank must be, and can only be, placed in the proper position when remounting on the front of the trailer. In any other position the base of the tank will not fit into the recess.**

**WARNING: Use only the gas bottles furnished with your trailer. If replacement is required it must be a bottle of the same size and design.**

**WARNING: The vent at the bottom of the regulator must be kept free of any obstructions and must be pointed downward. A good habit is to check the vent each time a bottle is removed for filling. It is especially important to check the vent if the trailer has not been used regularly.**

If you have allowed both tanks 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 will be able to 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.

Twice a year, or after a long storage period, we suggest you take your unit in for a checkup and cleaning of the gas operated appliances.

## **BASIC RULES FOR SAFETY**

**WARNING:** Do not store LP containers within vehicle. LP containers are equipped with safety devices that vent gas should the pressure become excessive.

**WARNING:** 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.

**WARNING:** 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.

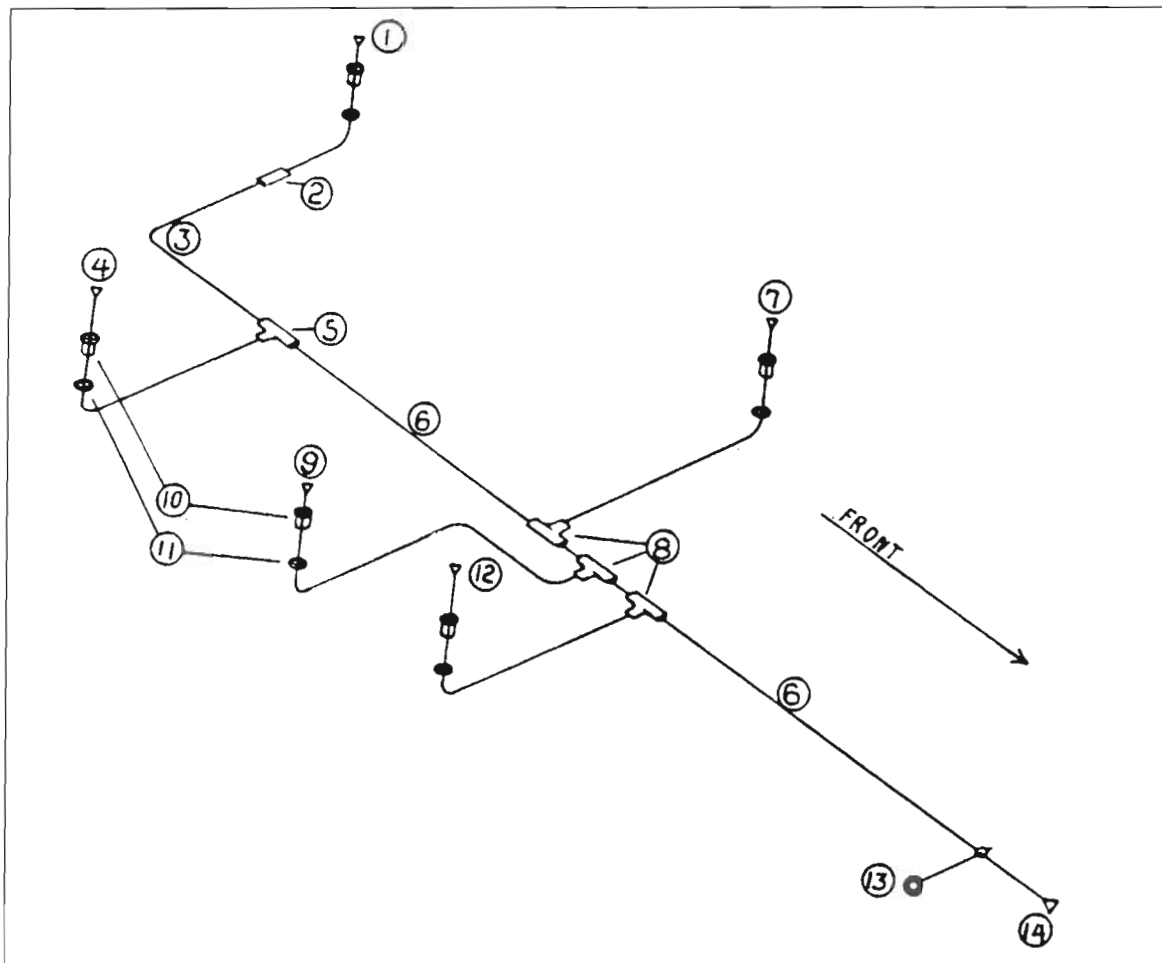
**WARNING:** A warning label has been located near the LP gas container. This label reads: **DO NOT FILL CONTAINER(S) TO MORE THAN 80 PERCENT OF CAPACITY.**

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.

**WARNING:** 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:**

1. 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.



### TYPICAL GAS LINE SYSTEM

- |    |                           |     |                           |
|----|---------------------------|-----|---------------------------|
| 1. | Connection, Water Heater  | 8.  | 5/8 x 5/8 x 3/8 Brass Tee |
| 2. | 3/8 Flare Coupler         | 9.  | Connection, Range         |
| 3. | 3/8 OD Copper Tubing      | 10. | Grommet, Floor Level      |
| 4. | Connect, Second Furnace   | 11. | Grommet, Underbelly       |
| 5. | 5/8 x 3/8 x 3/8 Brass Tee | 12. | Connection, Front Furnace |
| 6. | 5/8 OD copper Tubing      | 13. | Ground Lug                |
| 7. | Connection, Refrigerator  | 14. | Connection, LP Regulator  |

## WATER SYSTEM - SELF CONTAINED

Fill the water tank by opening the exterior access door and remove screw cap. A garden hose can now be inserted. It's a good idea to let the water run through the hose for a short time to flush it out. Experienced RVers usually fill their tanks with "home" water to avoid strange water that may be distasteful to them.

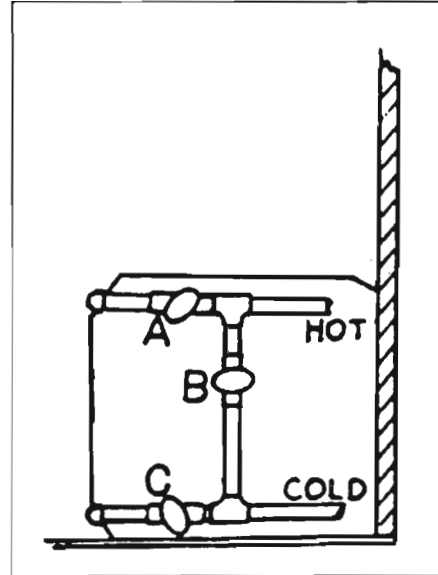
The amount of water in the tank may be checked on the Monitor Panel, or you may fill the tank until water overflows out of the fill.

Turn water heater by-pass valves, located in lavatory cabinet next to water heater, to normal flow position. Shut-off valve B - open valves A and C.

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 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.**

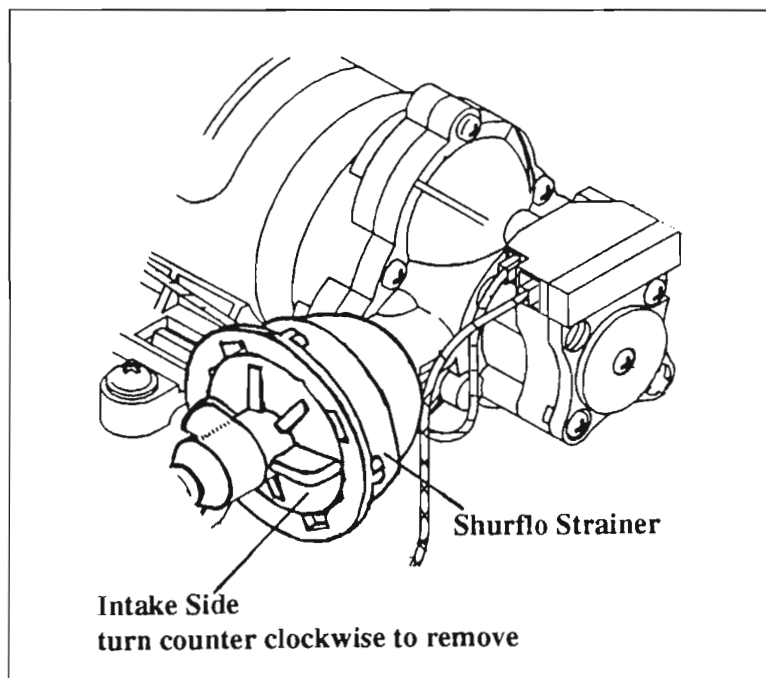


## WATER PUMP AND STRAINER

The water pump and strainer are located in the curbside wardrobe on all models.

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.





## SANITIZING

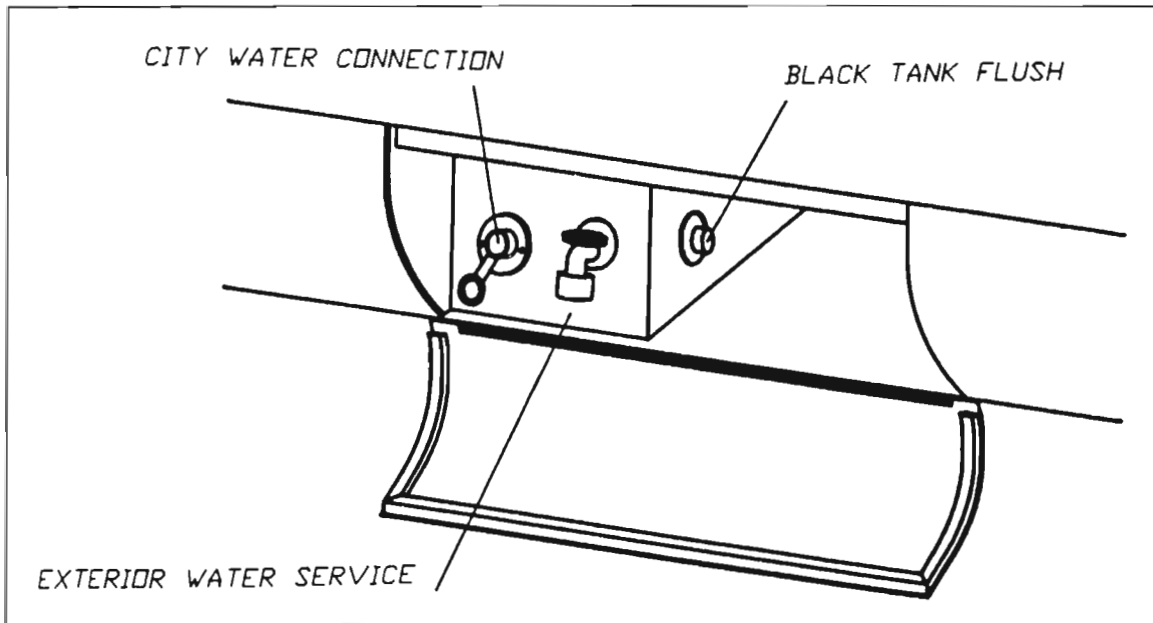
Potable water systems require periodic maintenance to deliver a consistent flow of fresh water. Depending on use and the environment the system is subject to, sanitizing is recommended prior to storing and before using the water system after a period of storage. Systems with new components, or ones that have been subjected to contamination, should also be disinfected as follows:

1. Use one of the following methods to determine the amount of common household bleach needed to sanitize the tank.
  - A) Multiply "gallons of tank capacity" by 0.13; the result is the ounces of bleach needed to sanitize the tank.
  - B) Multiply "Liters of tank capacity" by 1.0; the result is the milliliters of bleach needed to sanitize the tank.
2. Mix into solution the proper amount of bleach within a container of water.
3. Pour the solution (water/bleach) into the tank and fill the tank with potable water.
4. Open **all** faucets (Hot & Cold) allowing the water to run until the distinct odor of chlorine is detected.
5. The standard solution must have four (4) hours of contact time to disinfect completely. Doubling the solution concentration allows for contact time of one (1) hour.
6. When the contact time is completed, drain the tank. Refill with potable water and purge the plumbing of all sanitizing solution.

**NOTE:** The sanitizing procedure outlined above is in conformance with the approved procedures of RVIA ANSI A119.2 and the U.S. Public Health Service.

**Note:** A petcock, visible between the tires, will drain the tank sufficiently for most purposes. Total drainage may be achieved by removing the large Allen Head Plug located on the bottom of the tank. An access plate must be removed to expose the plug.

## CITY WATER HOOKUP



The city water hook-up is found on the lower roadside, rear corner of the trailer in the utility compartment.

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.

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 trailer 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.

## EXTERIOR WATER SERVICE

Also in the utility compartment is a hose connection with a shut-off valve. This is plumbed into the high pressure water system of the trailer. This is an ideal place to rinse the sand off your feet after going to the beach, cleaning mud off your boots and hundreds of other messy jobs that are better done outside of your trailer. During freezing weather this line should be drained. Shut off the valve under the lavatory and leave the exterior valve open.

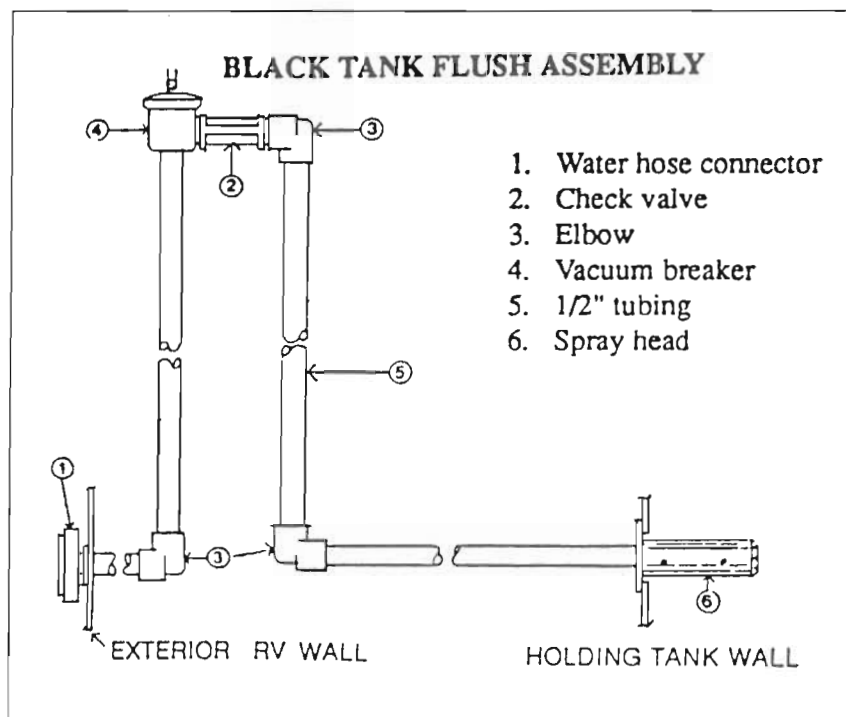
**NOTE:** Four valves are located in the lavatory cabinet. Three of these are used as the water heater by-pass system as described in the winterizing section. The fourth valve is for the exterior water service.

## BLACK TANK FLUSH

Also in the utility compartment is a water hose connector marked "black tank flush". To use, hook up a hose and turn on full force. Within the tank a spray head with a multiple holed head will spray the interior surface of the tank. The vacuum breaker and check valve will be located inside the trailer above the exterior connection. In most models this will place them under the lavatory.

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.

## BLACK TANK FLUSH ASSEMBLY



## ACCUMULATOR TANK

Your Airstream is equipped with an accumulator tank in the high pressure plumbing lines. It's located in your galley cabinet, below the sink and mounted to the wall. It's a black oval tank with a tire type valve in the top.

The top half of the tank is charged with about 20 p.s.i. of air. As your water pump runs this air acts as a cushion to smooth out the pulsations of the pump and evens out the high and low pressures. It will also reduce the high water pressure that can occur when the water heater is first heating a tankful of cold water.

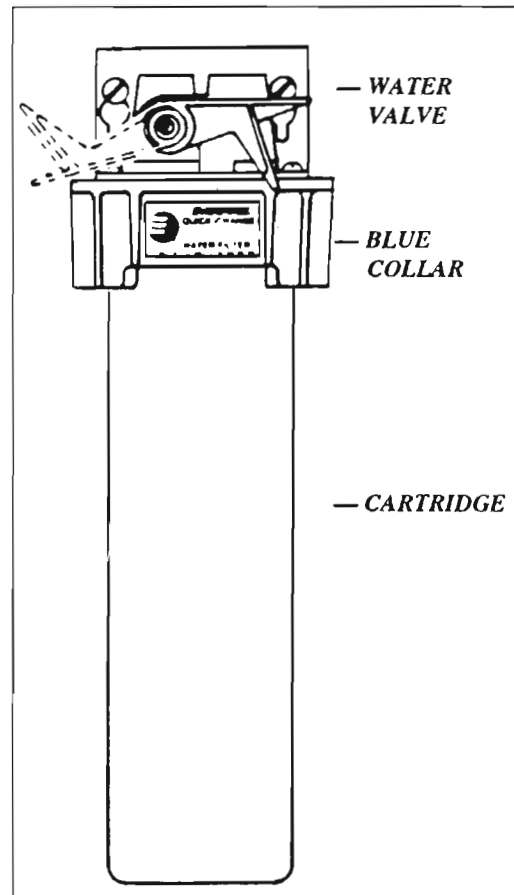
### Maintenance

- (A) Check Accumulator air pressure once a month using a regular tire gauge.
- (B) When checking air pre-charge pressure, be sure there is no pressure on the liquid side of the Accumulator tank. Disconnect the power source to the pump and relieve liquid pressure by opening a valve or faucet.

**CAUTION:** The air volume of this tank is quite small. Only a brief surge of air from a compressor is needed to increase the pressure dramatically.

## EVERPURE WATER FILTER

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. super-chlorination 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.



*Everpure Water Filter*

### 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.

## **DRAIN VALVES**

The line drain valves have been moved to the exterior of the coach for easier access. If you look between your tires you can see a galvanized "box" that is a few inches lower than the trailer frame. This "box" or pan supports the water tank.

The line drains will be the two brass petcocks extending from the end of the pan. The white plastic petcock you will see is to drain the water tank.

### **To Empty Fresh Water Tank**

The fresh water tank may be emptied by pumping the water out with the self-contained water pump. Simply turn on the pump switch and open a couple of faucets until the water will no longer come out. On all models there is also a petcock type drain valve located in the wheel well and extended out through the tank support pan.

An additional drain plug is located on the bottom of the tank, accessible under the inspection plate close to the petcock that can be seen on the bottom of the tank support pan.

**Note:** For winterizing purposes, only the petcock behind the tires need to be opened to drain the tank.

### **Water Heater Draining**

All models have a drain plug or petcock on the water heater. Access is from the exterior. The plug or valve is usually located in the lower left corner, viewed as you face the exterior of the water heater.

## WINTERIZING AND STORAGE

When storing your trailer for short or long periods 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.

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 WATER HOLDING TANKS, THE WATER HEATER AND THE BATTERY.

To completely winterize your trailer follow this procedure:

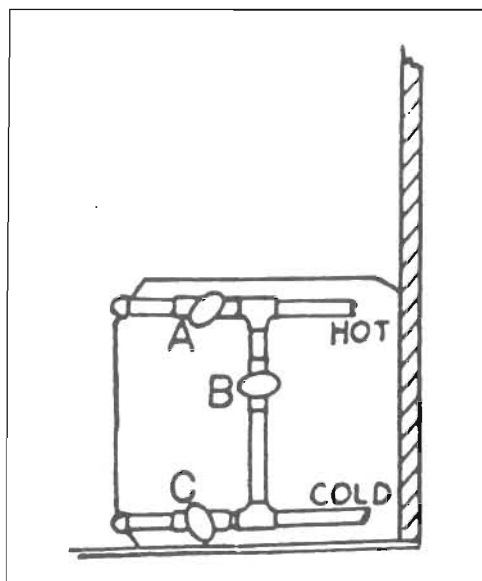
1. Level the trailer from side to side and front to rear. Open all faucets.
2. Turn the water pump switch to the ON position to expel water from the storage tank.
3. Open all drain valves including drain plug or valve on water heater and exterior water service valve. (See drain valves on previous page)
4. While the water is draining from the system, open and flush the toilet flushing valve. Depress hand spray lever while holding the spray head down inside the bowl. Depress hand spray thumb button on the telephone shower head while holding down inside the tub and drain all water from the flexible hose. Unscrew the heads on both spray units and store.
5. After all water has been removed from the storage tank, turn the pump switch OFF.
6. Remove exhaust hose from water pump.
7. Disconnect the water pump inlet connection and turn the pump on until all the water is expelled. This water, about 1/2 cup, can be caught in a towel or rag.
8. Lower the front-of the trailer as far as the jack will allow until water ceases to drain, then crank the jack up as high as it will go and let any remaining water drain out.
9. After the water has stopped running from the drain lines, apply at least 60 lbs. of air pressure at the city water inlet. An air to city water adapter is available from your dealer's RV accessory store. 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.
10. Pour a cup of \*approved non-toxic RV antifreeze into the lavatory, sink and tub drains to prevent trap freeze-up.  
  
\*Approved and listed by a recognized testing authority such as UL (Underwriter Lab).
11. 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 TANKS, IF FROZEN, COULD SERIOUSLY DAMAGE THE TANKS.)

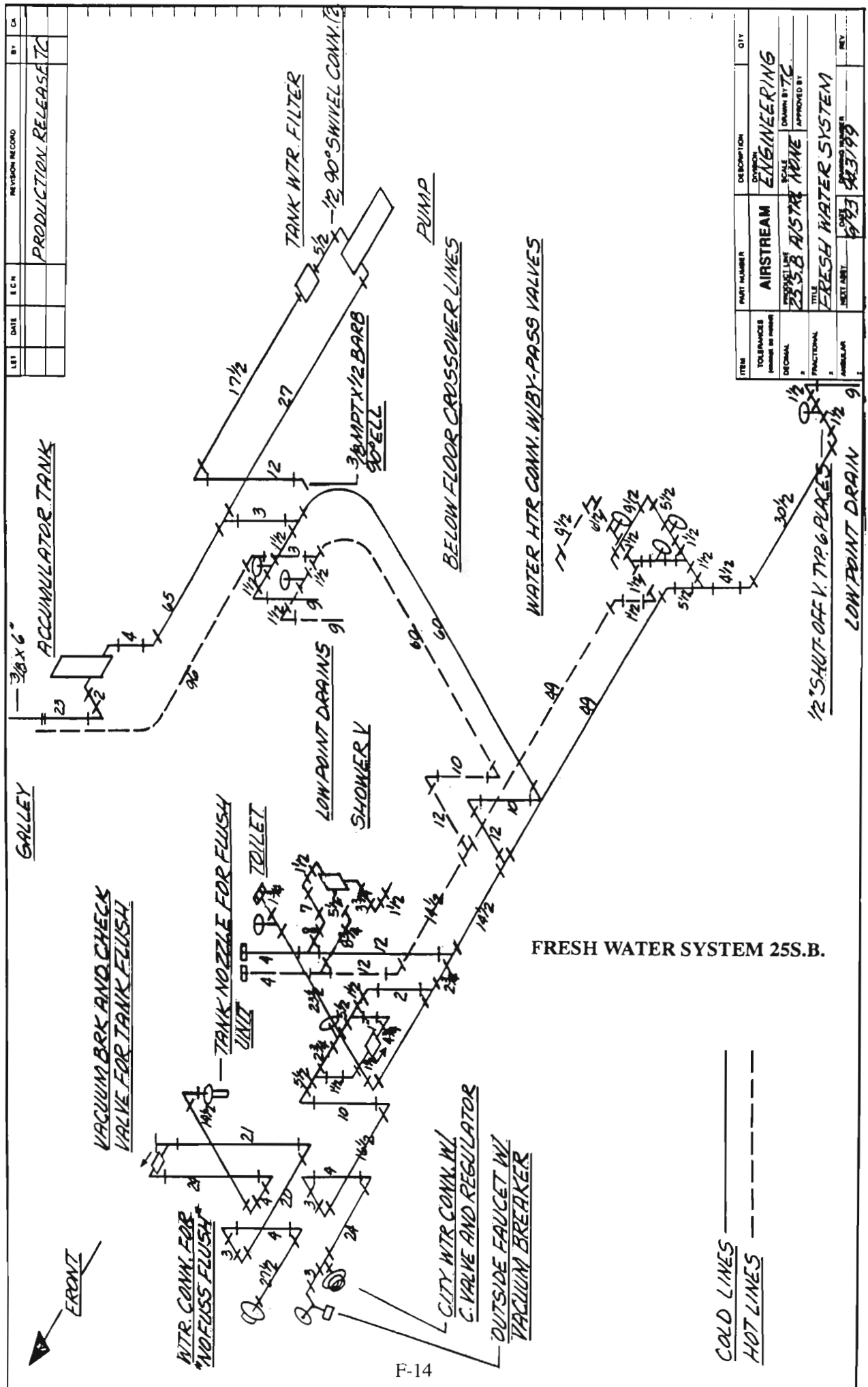
12. Remove the cartridge of the water purifier and leave the purifier valve in the open position. (If so equipped.)
13. Remove the batteries from your trailer and store in a cool dry place where there is no danger of freezing. It is very important for optimum life of a battery to check it periodically and to keep it fully charged.
14. Remove any items (food, cosmetics, etc.) from trailer interior that might be damaged by freezing - or might damage the trailer if containers break.

For additional winterizing protection add a non-toxic antifreeze (approved for drinking water system) to the water lines using the following procedure;

1. Reconnect all lines except the hose to the pump inlet port. Close all drain valves.
- 2.\* Turn by-pass valve to by-pass position. Access to the by-pass valves is in the lavatory cabinet. If your trailer has rear twin beds valve access may be through the exterior storage door just to the rear of the water heater.
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 hand shower 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.

\*To by-pass the water heater for winterizing, close valves A and C and open valve B (See illustration).

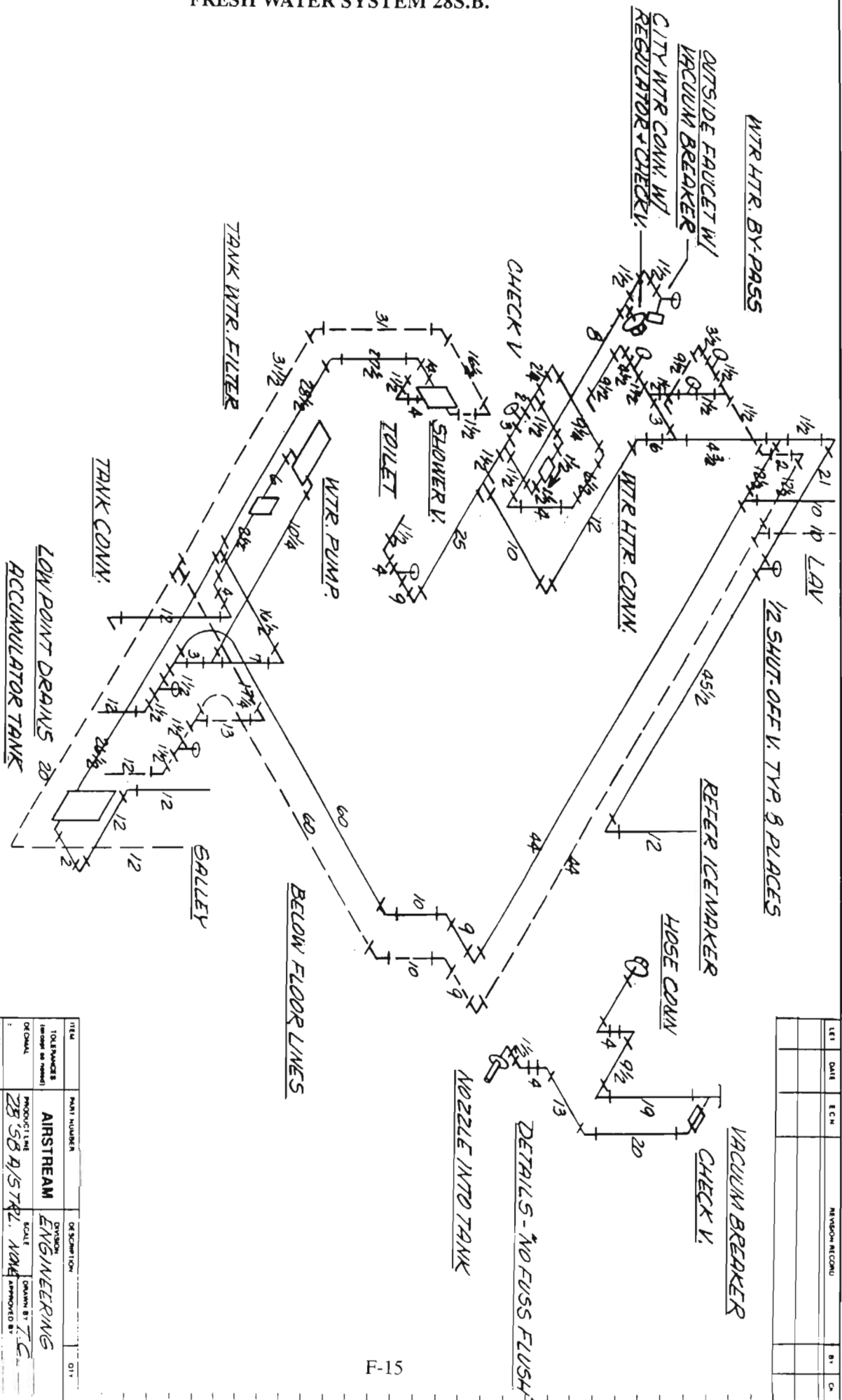






# FRESH WATER SYSTEM 28S.B.

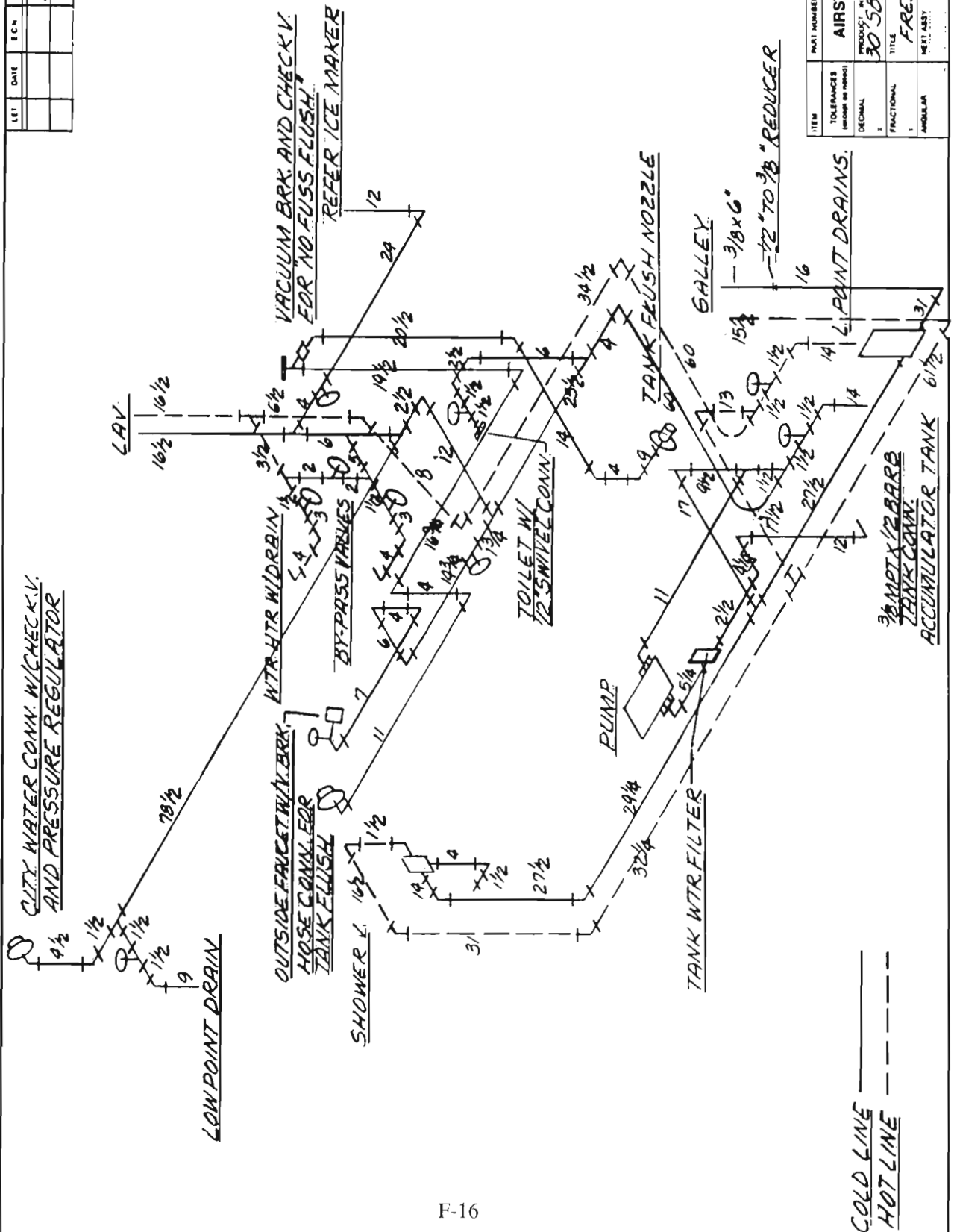
COLD LINE  
HOT LINE



TITLE	DATE	BY	CHK
TOLERANCES (unless as noted)			
OF CHAIN			
FUNCTIONAL			
ANALYSIS			
DATE	1/1/93	943481	REV
TITLE	FRESH WATER SYSTEM.		
PROJECTING	28'SB A/STPL. NAME		
SCALE	NONE		
DESIGNED BY	T.C.		
APPROVED BY			

# FRESH WATER SYSTEM 30S.B.

LET	DATE	E.C.N.	REVISION RECORD	BY	CA.
			PRODUCTION RELEASE		



ITEM	TOLERANCES (UNLESS OTHERWISE SPECIFIED)	DESCRIPTION	QTY
1	DECIMAL	AIRSTREAM	ENGINEERING
2	FRACTIONAL	PROD. BY 3058 ASTRAL	SCALE DRAWN BY TC
3	ANGULAR	TITLE	APPROVED BY
		FRESH WATER SYSTEM	
		DATE 10/92	DRAWING NUMBER 923403
		BY	REV

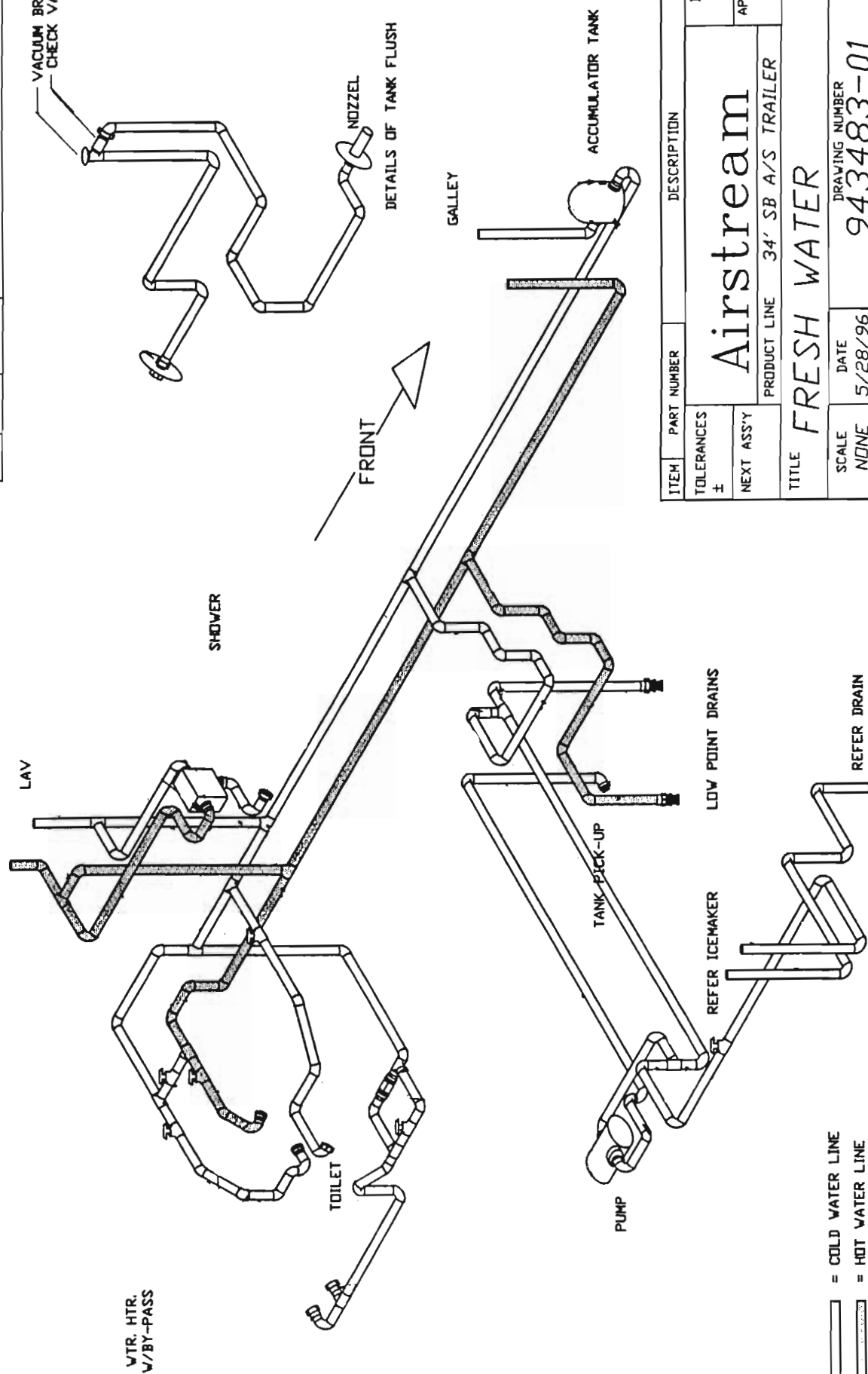
COLD LINE \_\_\_\_\_  
 HOT LINE -----

LET	DATE	E.C.N.	REVISION RECORD	BY
3/97			PRODUCTION RELEASE	TC



LET	DATE	E.C.N.	REVISION RECORD	BY
	6/96		PRODUCTION RELEASE	TC

# FRESH WATER SYSTEM 34 S.B.



ITEM	PART NUMBER	DESCRIPTION	QTY	UM
<div> <div> <div>TOLERANCES</div> <div>±</div> </div> <div> <div>NEXT ASS'Y</div> <div></div> </div> </div> <div> <div>Airstream</div> <div>PRODUCT LINE 34' SB A/S TRAILER</div> </div> <div> <div>FRESH WATER</div> <div>DRAWING NUMBER 943483-01</div> </div>				
<div> <div> <div>SCALE NONE</div> <div>DATE 5/28/96</div> </div> <div> <div>REV. B</div> <div>BY TC</div> </div> </div> <div> <div>APPROVED BY</div> <div></div> </div>				

## **DRAIN AND WASTE SYSTEM**

Your trailer has a drain and waste system that includes waste holding tanks made from molded plastic, free from corrosion problems, with trouble-free dump valves.

The MAIN HOLDING TANK enables you to use the toilet for several days away from disposal facilities. The waste water from the sink, shower, bath and lavatory drains in 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.

**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.

### **Deodorizers**

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.

### **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.

### **Emptying Tanks**

Almost all campgrounds will have dumping facilities. Park directories such as Woodalls and Rand McNally also list dumping stations.

To empty one or both tanks attach the sewer hose by pressing the bayonet fitting onto the dump valve outlet 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 it will drain completely.

Pull the dump valve handle as far as it will go and wait until the tank is drained. When dumping, the main holding tank should be dumped first; then the auxiliary holding tank. This will help to rinse out the sewer line with auxiliary holding tank water.

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 clean water and repeat until clean. Replace the cap prior to traveling.

### **Black Tank Flush**

On the left rear lower side is a water hose connector marked "black tank flush". To use, hook up a hose and turn on full force. Within the tank a head with multiple holes will spray the interior surface of the tank. The vacuum breaker and check valve will be located inside the trailer above the exterior connection. In most models this will place them under the lavatory.

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.

### **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.**

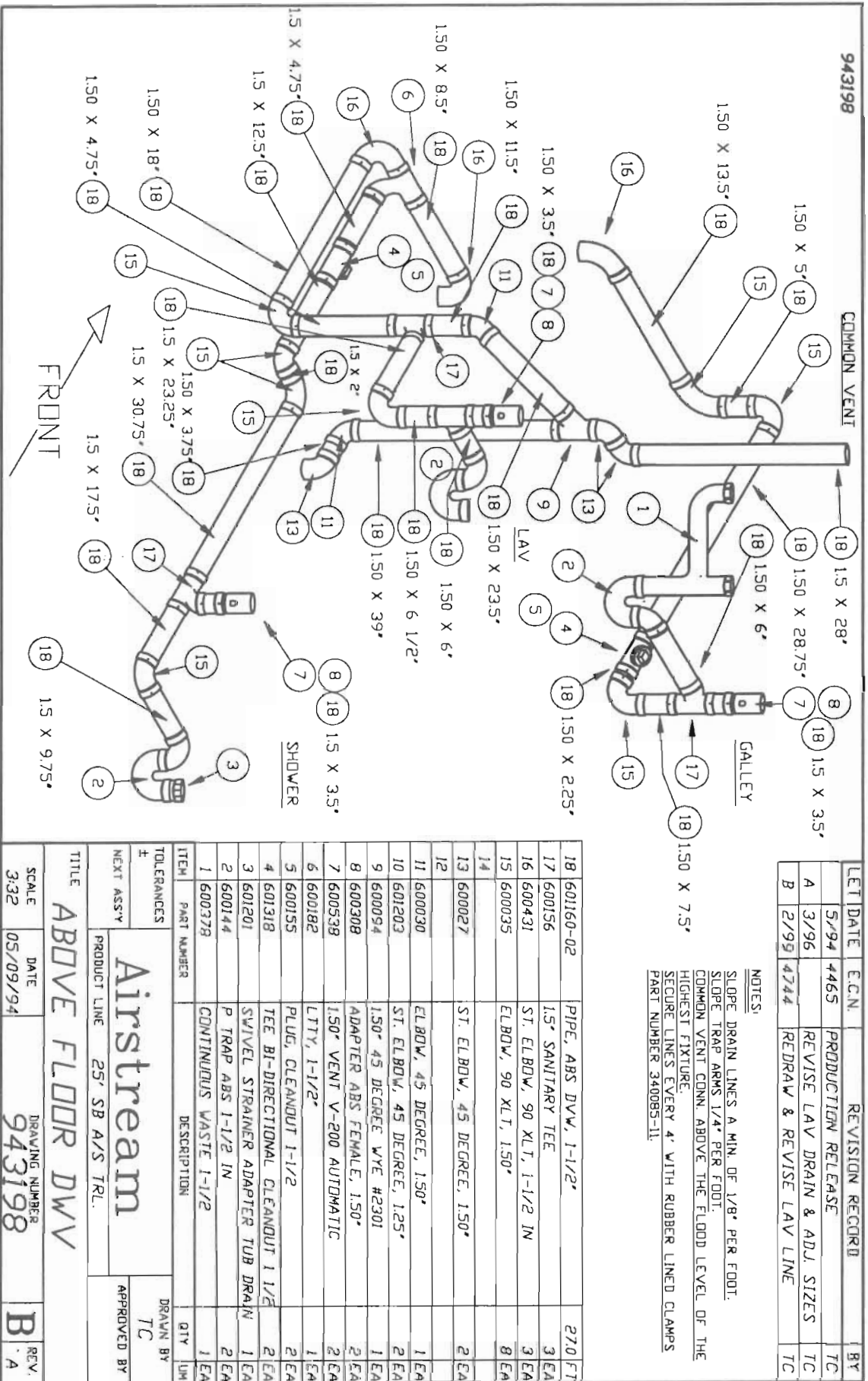
This practice will avoid the accumulation of solids in the main holding tank which could lead to an unpleasant cleaning job. Should solids accumulate, close the dump valve, fill the tank about half full with water, then tow the trailer for a few miles. The turbulence and surging of the water will usually 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.

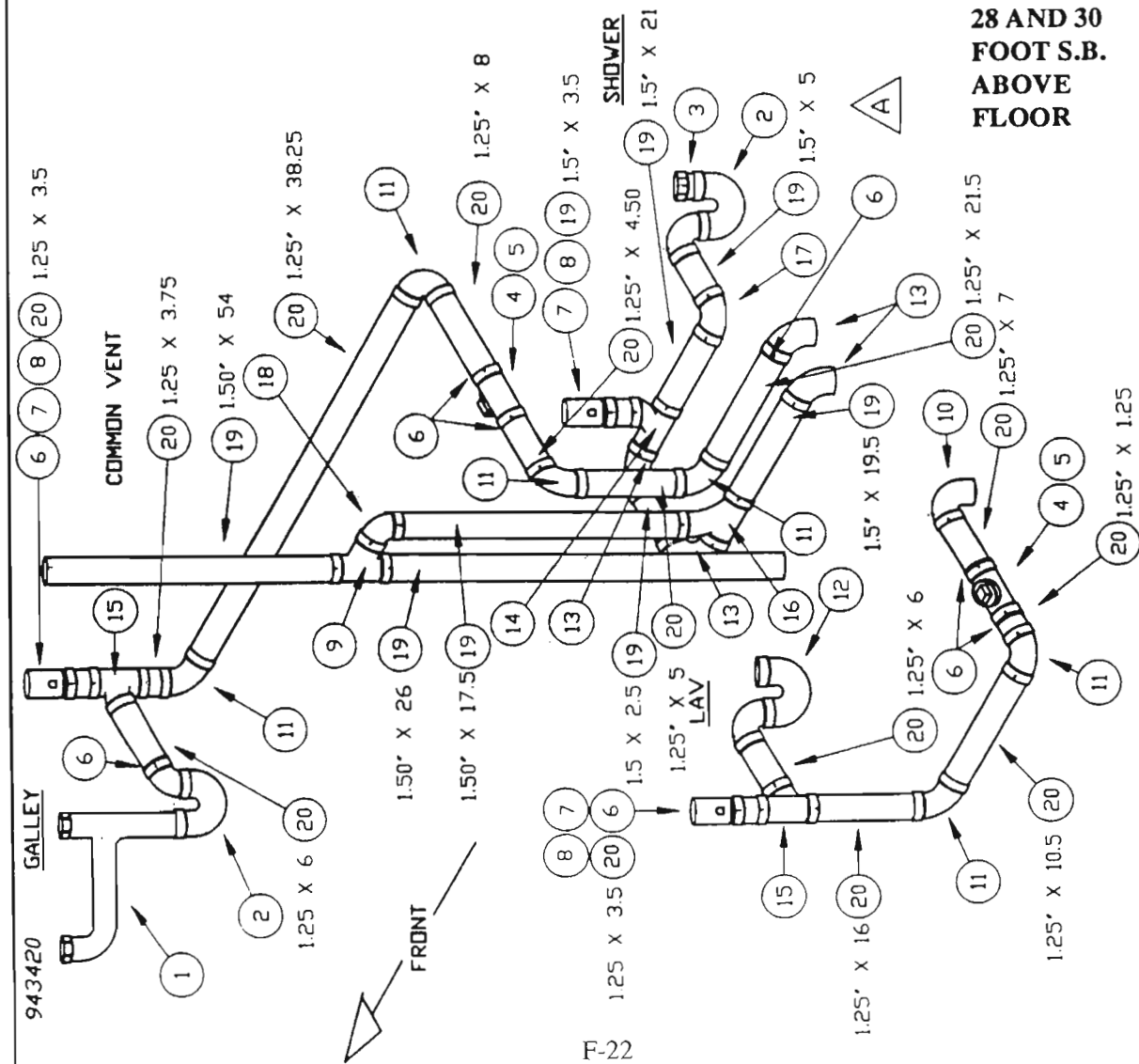
### **Drain Systems Cleaning**

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 trailer plumbing system type antifreeze. These are sold through your dealer.



LET	DATE	E.C.N.	REVISION RECORD	BY
	7/88	4164	PRODUCTION RELEASE	JM
A	2/95		ADD 3RD GREY TNK. ENTRY	TC



20	601160-01	PIPE, ABS DVW, 1.25"	11.2	FT
19	601160-02	PIPE, ABS DVW, 1-1/2"	12.4	FT
18	600027	1.50", 45 DEGREE ST. ELL	1	EA
17	600030	1.50", 45 DEGREE ELL	1	EA
16	600182	1.50" LTTY	1	EA
15	601198	1.25", SANITARY TEE	2	EA
14	600156	1.50", TEE SANITARY	1	EA
13	600431	1.50", 90 DEGREE, XLT ST. ELL	4	EA
12	601202	P-TRAP W/UNION, 1.25" #62615	1	EA
11	601199	1.25", 90 DEGREE, XLT ELL	6	EA
10	601440	1.25", 90 DEGREE, XLT ST. ELL	1	EA
9	600094	1.50", 45 DEGREE WYE	1	EA
8	600308	ADAPTER ABS FEMALE SLDAN #2891	3	EA
7	600538	VENT V-200 AUTOMATIC	3	EA
6	601263	BUSHING 1.5 X 1.25 ABS	8	EA
5	600155	PLUG, CLEANOUT 1-1/2	2	EA
4	601318	TEE BI-DIRECTIONAL CLEANOUT 1 1/2	2	EA
3	600442	SWIVEL STRAINER ADAPTER TUB DRAIN	1	EA
2	600144	P TRAP ABS 1-1/2 IN	2	EA
1	600378	CONTINUOUS WASTE 1-1/2	1	EA

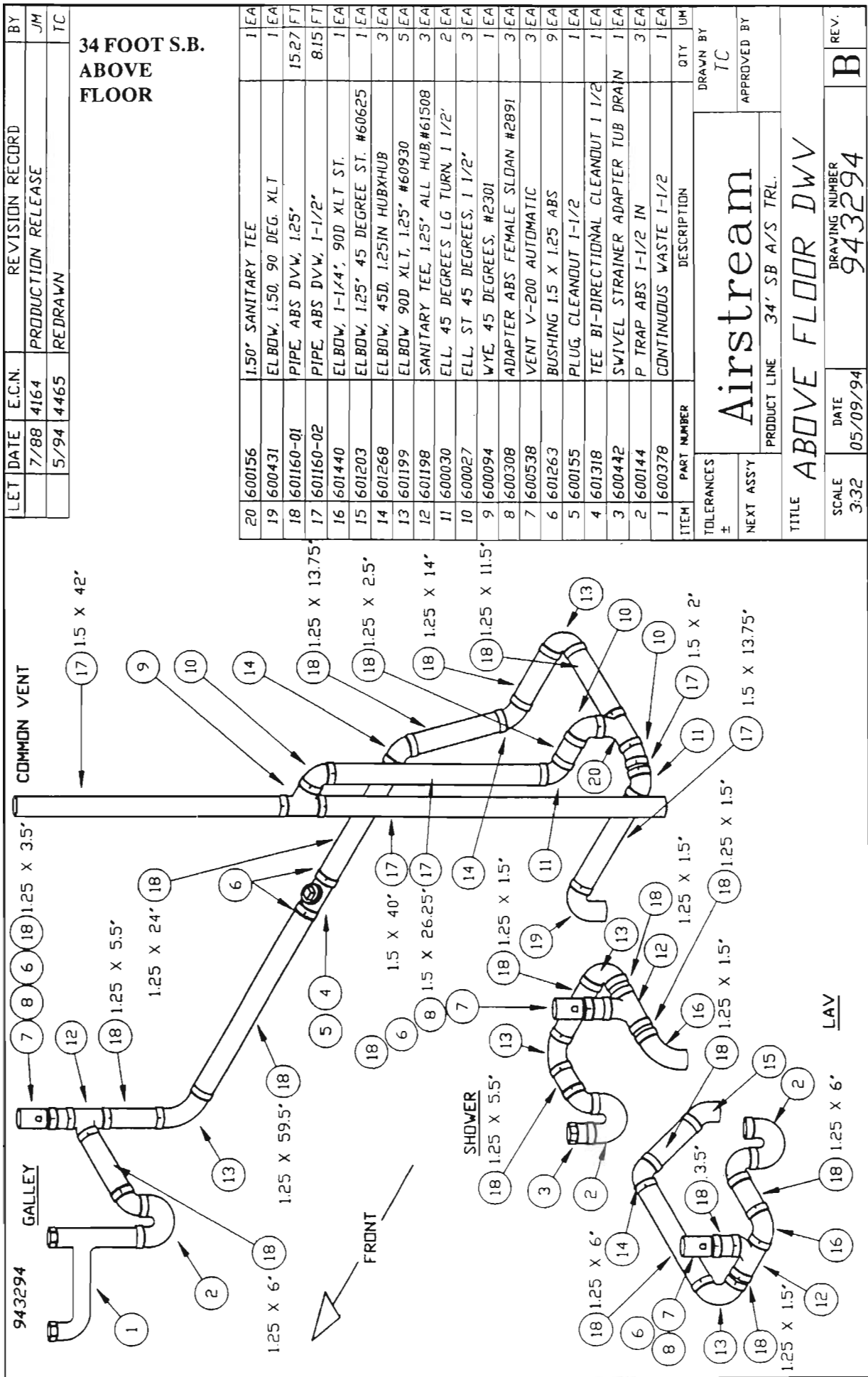
ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES				
±				
NEXT ASSY				
DRAWN BY				
TC				
APPROVED BY				
TITLE				
ABOVE FLOOR DWV				
PRODUCT LINE				
28' & 30' SB A/S TRL'S.				
SCALE				
3:32				
DATE				
05/14/94				
DRAWING NUMBER				
943420				
REV.				
A				



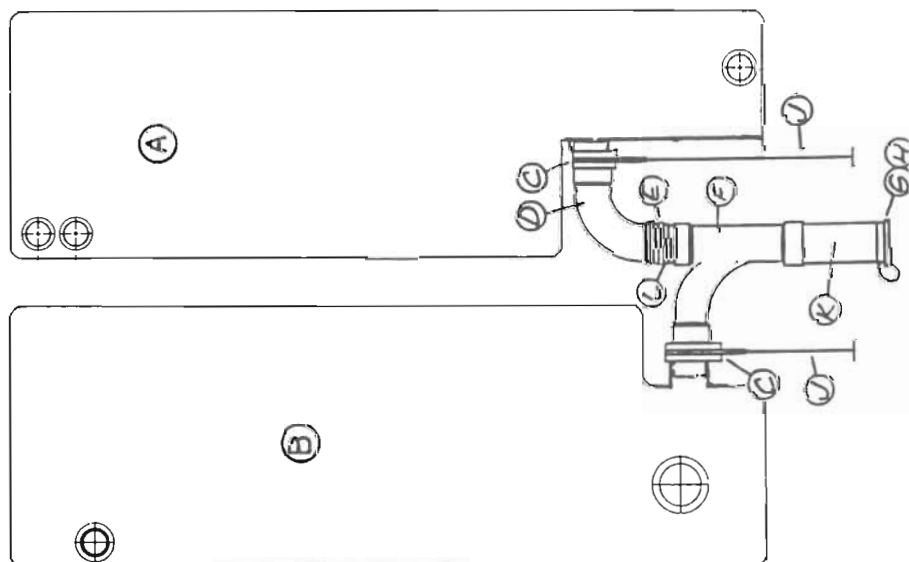
LET	DATE	E.C.N.	REVISION RECORD	BY
6/97			PRODUCTION RELEASE	TC



ITEM	PART NUMBER	DESCRIPTION	QTY	UNIT
TOLERANCES				
±				
NEXT ASS'Y				
TITLE		PRODUCT LINE	3' SB AIRSTREAM TRL.	
ABOVE FLOOD DWV		Airstream		
SCALE	DATE	DRAWING NUMBER	DRAWN BY	
1=16	6/3/97	943509	TC	
			APPROVED BY	
			B	
			REV.	



LIST	DATE	S.C.N.	REVISION REQUIRED	BY	CL
	7/91				
PRODUCTION RELEASE					



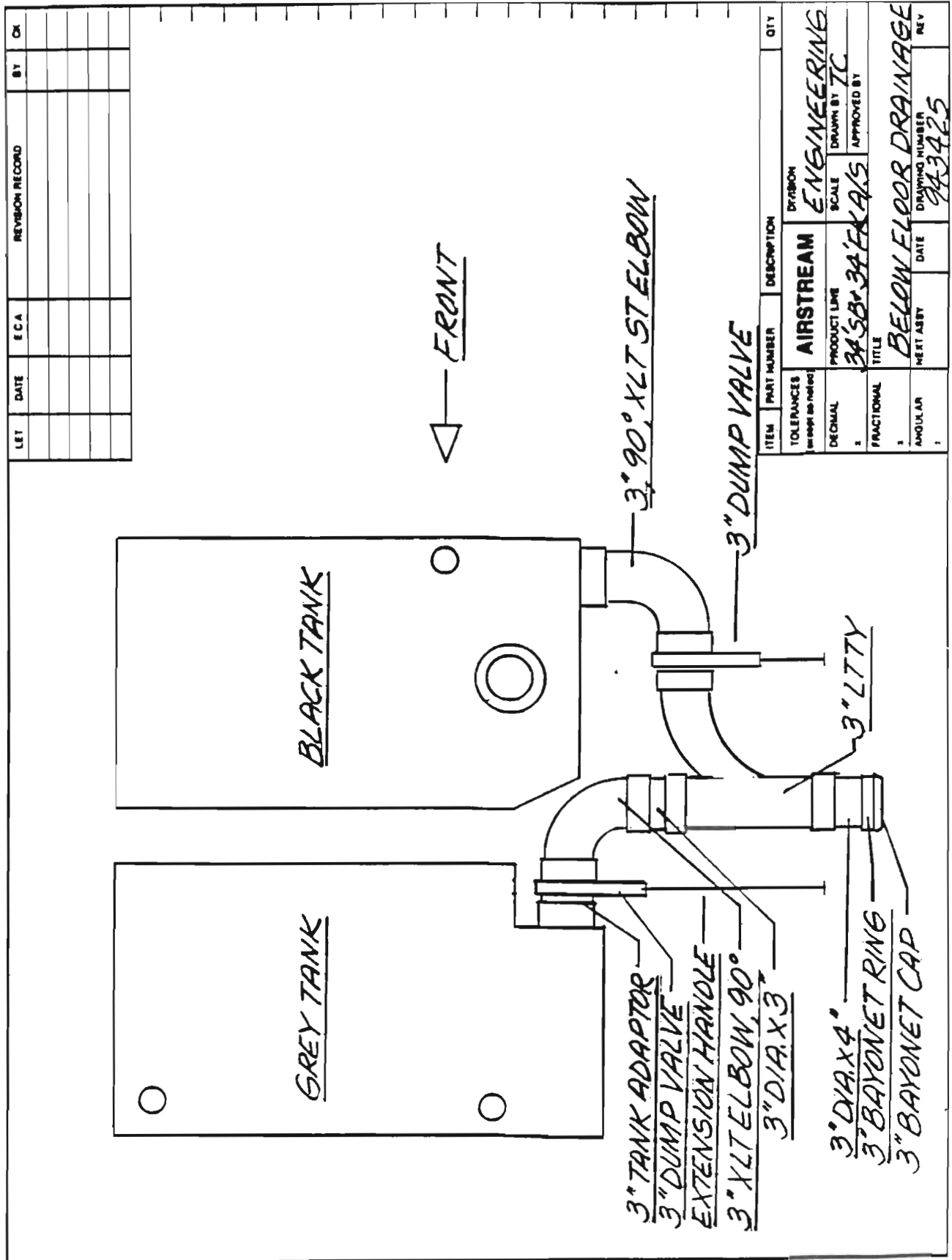
2 NOV 71

PLAN VIEW

ITEM	TOLERANCES (unless in inches)	PART NUMBER	DESCRIPTION	DIVISION	QTY
L			6011600-3" DIA x 3"		1
K			600620-3" DIA x 10" ABS		1
J			600214 EXTENSION HANDLE		2
H			601251 BAYONET RING		1
G			601250 BAYONET CAP		1
F			600187 3" WYE		1
E			600289 RUBBER UNION		1
D			600820 3" 90° XLT STELL		1
C			600405 DUMP VALVE		2
B			NOTE 2 BLACK TANK		1
A			NOTE 1 GRAY TANK		1

AIRSTREAM		SCALE	DRAWN BY T.C.
PRODUCT LINE		NONE	APPROVED BY
TITLE		BELOW FLOOR DRAINAGE	
DATE	25/28/30	DRAWING NUMBER	040317A
DESIGNAL		DATE	
FUNCTIONAL		NEXT ASST.	

34 FOOT S.B. AND F.K. BELOW FLOOR



## 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.



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## ELECTRICAL

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### OPERATION

The major portion of electrical power in your Airstream is 12 volt. Your lights, fans, furnaces, water pump and water heater ignition are all powered by the 12 volt current. The exception would be the air conditioner and microwave oven.

All 12 volt current comes through the battery system in the front of your trailer. The battery or batteries are accessible from the exterior on the front of your trailer. Power from the battery first goes to a master or "kill" switch inside the trailer at the left end of the drawer under the front couch. If your trailer has a cabinet across the front, the master switch is in the cabinet. The master switch should be left in the ON position except when storing, or a mechanic may use the switch when servicing the trailer.

Power from the main switch continues on to the 12 volt distribution panel, and from there to the rest of the trailer. The 12 volt distribution panel has resettable circuit breakers and does not require routine servicing. If a short should occur the breaker in that circuit will "click" off and you may notice some lights or appliances losing power. If this should happen, immediately turn the lights and appliances off that are on the shorting circuit and reset the breaker by depressing the small button in the end. If the breaker continues to "click" turn the main power off until your trailer can be serviced by a qualified technician.

The charge in the 12 volt batteries is replenished when towing or when plugged into 110 volt city power.

## BATTERY

**CAUTION:** A normal battery can discharge by itself in 30 to 40 days when not in use, therefore, **IT IS NECESSARY TO PERIODICALLY CHECK THE BATTERY AND CHARGE IT AS IS NECESSARY.**

We suggest checking the battery at least every two weeks in freezing weather. The temperature at which a battery will freeze depends on the condition of its charge. As an example: a fully charged battery with a specific gravity of 1.265 will not freeze until the electrolyte temperature drops to -71.3°F, while a discharged battery will freeze at +19°F. The following table shows the freezing points of batteries at various specific gravity readings, temperature corrected 80°F.

1.265	-71.3°F
1.250	-62°F
1.200	-16°F
1.150	+5°F
1.100	+19°F

Do not add water to a battery in freezing temperatures unless the vehicle will be put to use at once, otherwise the added water may freeze. Neglect is expensive. Care costs little. Check your batteries regularly.

**MAINTAIN A CLEAN BATTERY TOP AND CHECK TERMINALS AND CABLES FOR TIGHTNESS AND CLEANLINESS.** A dirty battery will dissipate its charge through surface contamination. Clean battery top with a damp cloth and dry thoroughly.

The terminals should be tight and free of corrosion. To clean terminals, neutralize with a solution of baking soda, rinse in clear water, and dry.

**Note:** Care must be used to make sure soda is not allowed to enter battery cells.

To insure maximum battery capacity on both charge and discharge, the battery terminals and the inside portion of the cable connector should be scraped or brushed until both of these surfaces are shiny bright. The cable connectors should then be reconnected to the battery and tightened. The complete assembly, battery post and cable connector should be coated with a heavy body mineral grease, petroleum grease or a petroleum jelly.

**CAUTION: RECONNECT THE BATTERY CABLES TO THE CORRECT BATTERY POSTS.** The black cable should be connected to the negative (-) post and the red cable to the (+) post. The polarity of your tow vehicle must also be negative (-) ground since it must always match the trailer. Most tow vehicles are negative grounded, but always check your vehicle owner's manual to be sure.

**ADD WATER TO CELLS AS NECESSARY.** Check the electrolyte level at least once a month. When you are traveling steadily and for an extended period of time, or if you are in climates above 90°F, check the electrolyte level about every two weeks.

**CAUTION:** Do not fill battery above the split ring in filler opening. **DO NOT MEASURE SPECIFIC GRAVITY IMMEDIATELY** after adding water. The water must mix with the electrolyte by charging or by driving a few miles.



**WARNING:** The gases generated within a storage battery cell may be ignited by an open flame or spark in the vicinity of the battery. Do not use a match or flame to provide light for checking the level of the water.

During the winter the battery should be removed from the trailer and stored in a cool, dry place, where there is no danger of freezing. It should be kept full of water, cleaned and charged monthly. A battery which is allowed to completely lose its charge will never regain its original power or a full charge.

Slide the battery out onto the opened compartment door for service and removal.

For battery service or replacement, go to any service station or dealer who sells and services the make battery installed in your trailer.

When being towed, the 12 volt battery in your trailer is receiving a constant charge from the car's generator or alternator through the seven way connector.

The charge rate is controlled by your automobile's voltage regulator. It is important to keep the seven way connector clean. One method is to use "Spra-Kleen".

Whenever possible use the automatic built in charge of the univolt system for charging. The charging circuit automatically controls the current, reducing it as the battery increases in charge.

At service stations make certain they give your battery a slow charge because quick charges will drastically shorten the life of the battery, as will allowing repeated complete discharges.

## **UNIVOLT**

The univolt system is the interior low voltage electrical system which enables you to use the interior lights, fans, pumps and 12 volt appliances whether operating on self-contained battery power or 120 volt city power.

**CAUTION:** Plugging the trailer into 120 volt city power with the master switch off will blow radio fuses and may damage other 12 volt components. The master switch is meant to be used when storing the vehicle for long periods of time.

## **12V POWER CIRCUITS**

The current in the univolt system is 12 volts direct current (12VDC) negative grounded.

Power sources which supply 12VDC current to the system are as follows:

- A. Main charge line from tow vehicle.
- B. Trailer Battery
- C. Univolt Converter

The power sources above are all electrically connected to the 12 volt distribution fuse panel which distributes current to interior branch circuits. The circuits provide power to operate all 12 volt DC lights, pumps, motors and appliances.

## **Univolt Converter**

The univolt converter transforms 120 volt alternating current (AC) into 12 volt direct current (DC). This provides power to charge the trailer battery and to operate the 12 volt interior lighting, fans, and appliances.

The converter is energized only when the trailer is hooked up to 120 volt city power.

## **Univolt Testing**

- A. Confirm 120 volt power is going into univolt.
- B. Disconnect 12+ wire from master switch.
- C. Using a volt meter check voltage output between heavy positive and negative wires coming out of univolt.
- D. The voltage must be within 13.8 and 14.2 volts. (The meter of the tester should be calibrated periodically.)
- E. If univolt is not within these voltages, replace it.

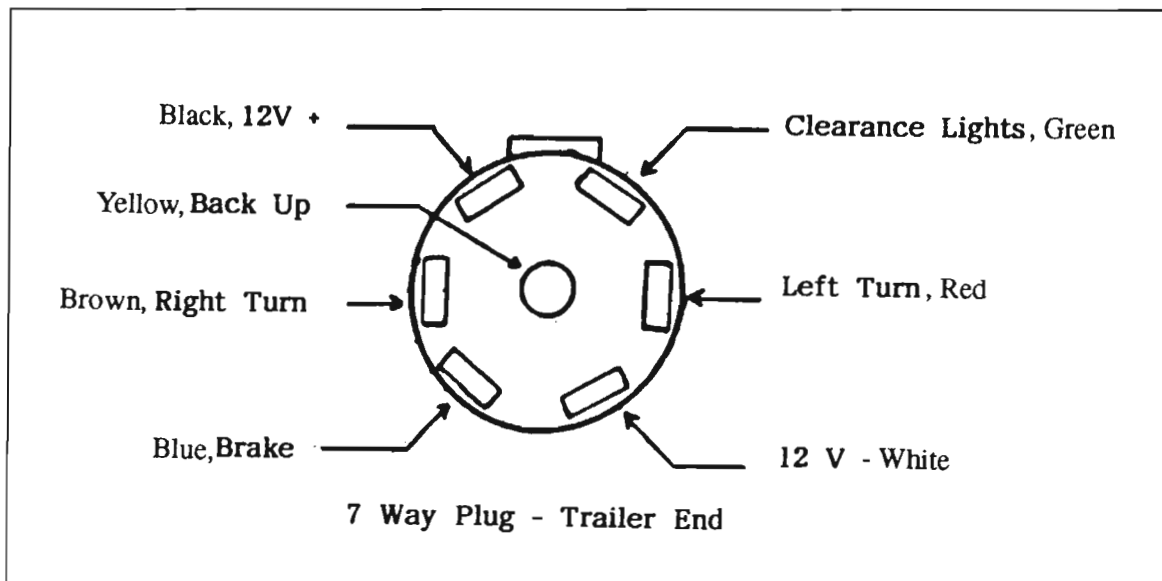
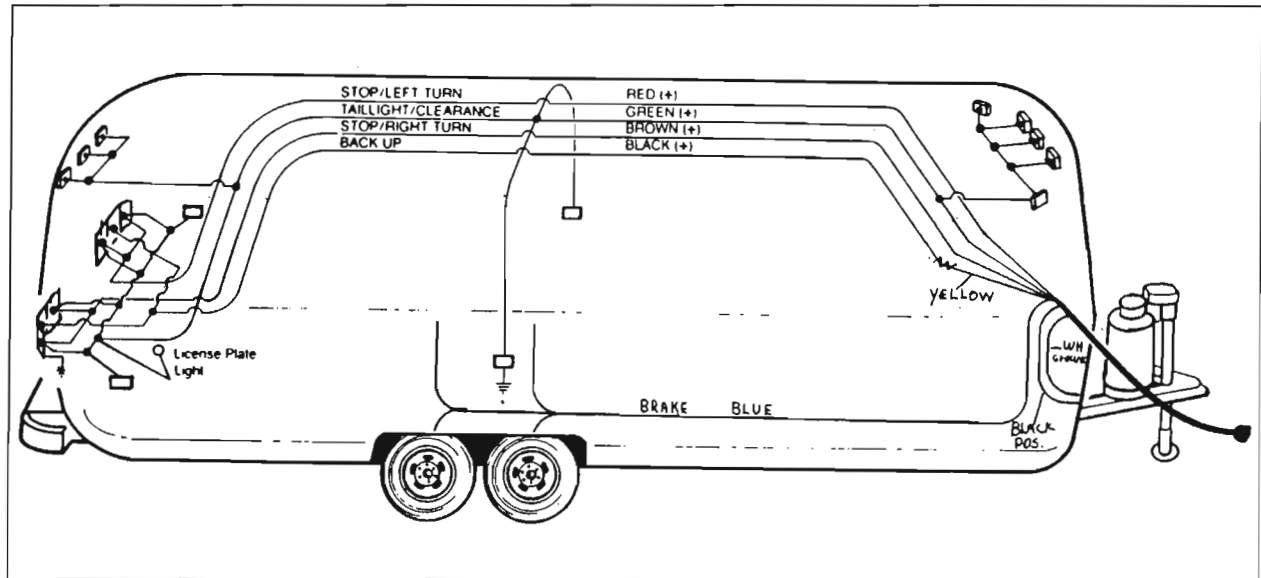
## **Univolt Repair**

The case cover to the univolt must not be removed. (There is high voltage within the case which is dangerous.) The univolt should be returned to Airstream for repair.

## **Univolt Removal**

- 1. Disconnect power cord for 120 volt supply.
- 2. Switch circuit breakers to off position.
- 3. Remove the front lounge.
- 4. Disconnect lead-in wires running from univolt assembly to 12 volt fuse distribution panel.
- 5. Remove four screws mounting the univolt assembly to the floor.
- 6. Remove the univolt assembly.
- 7. To install, reverse the removal procedures.

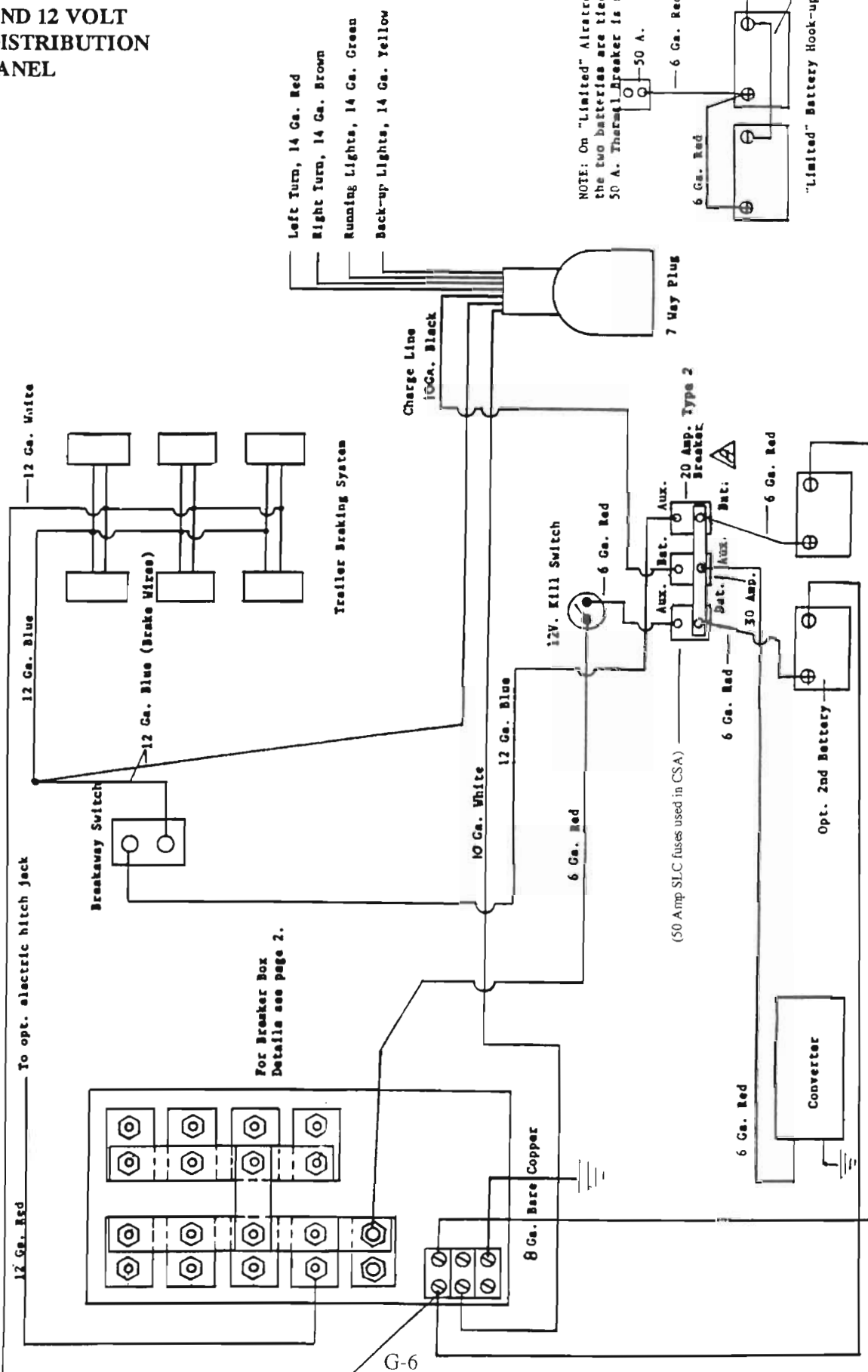
## 12 VOLT EXTERIOR



**Note:** The 7 way wire is spliced to the main harness in the area of the 12 volt distribution panel in front of the trailer.

One of these wires is not spliced onto a wire of the same color. It is the back up wire which is yellow in the cable and black in the harness.

# WIRE ROUTING SCHEMATIC - 7 WAY PLUG TO BATTERIES AND 12 VOLT DISTRIBUTION PANEL



NOTE: On "Limited" Alratream Trailers, the two batteries are tied together and one 50 A. Thermal Breaker is used. See below.

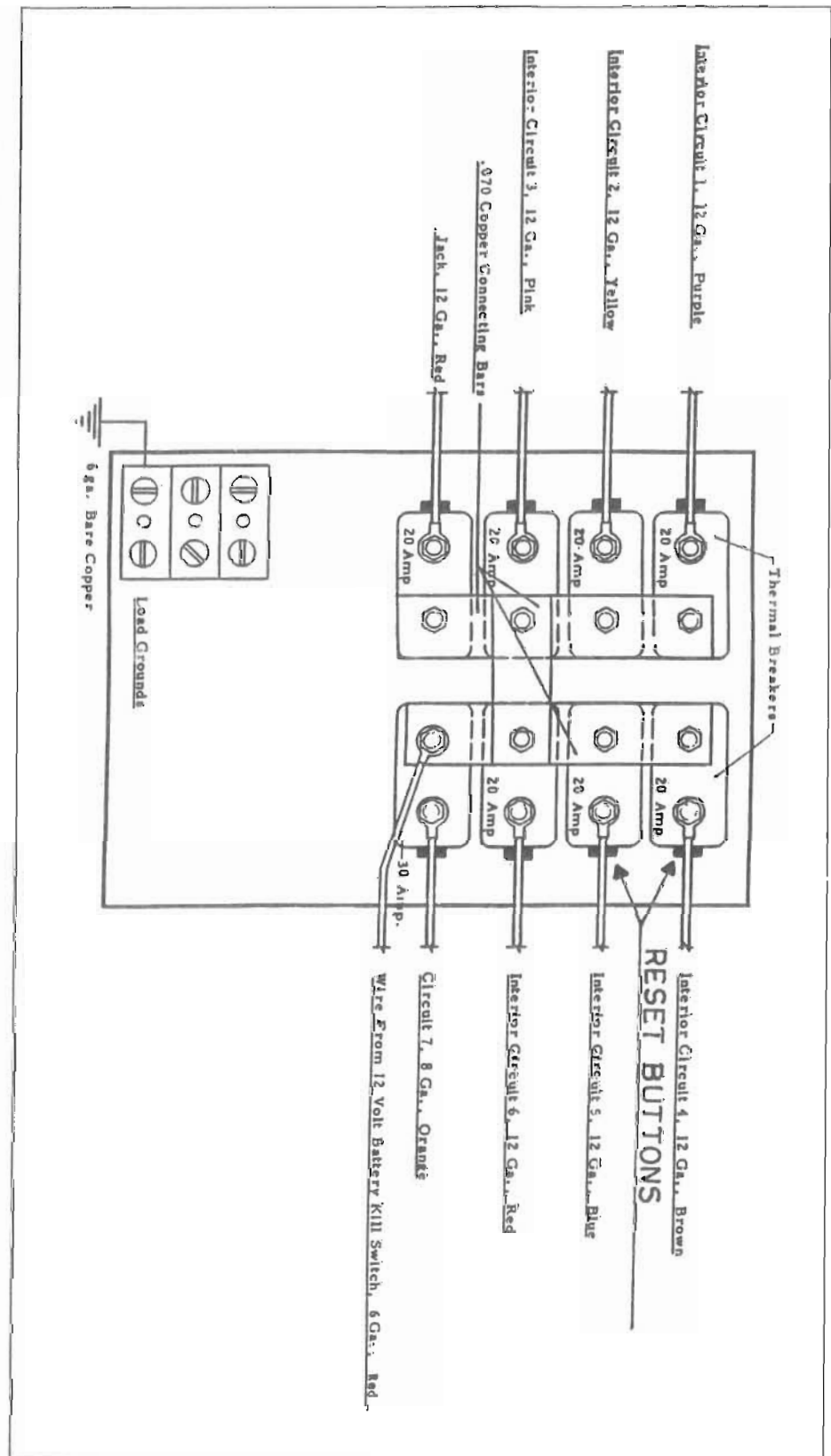
**"Limited" Battery Hook-up**

## 12 VOLT INTERIOR

### Distribution Panel

The low voltage distribution panel is located on the interior front panel below the window. On Limited models it is under the roadside curved window, and on the Excella models it is under the center window. In some cases it is covered by a wall pad that unsnaps to remove. The 12 volt circuits are all protected by re-settable circuit breakers. If a breaker trips, an audible click will be heard, and you will probably see lights or fans quit working. Reset the breaker by depressing the small rectangular button on the end of the breaker. If the breaker trips a second time some of the lights or appliances on that circuit should be shut off. The questionable breaker can either be identified by the protruding reset button.

Each trailer has a master 12 volt switch often called a "kill switch". Access on all models is at the left end of the large drawer under the front coach. This switch should only be used when storing or servicing the trailer.



## **TROUBLE SHOOTING**

The most common failure in the exterior electrical system is an open circuit. An open circuit is an interruption in the current flow which may be in either the wire to the component or in the ground return. Check the following areas for open circuits:

1. Light bulb (filament open.)
2. Loose or corroded connections at lighting device.
3. Loose or corroded connections at 7 way connectors.
4. Improper grounding at the lighting device.

A continuity light or an ohm meter will help you isolate the point of the “open” on the circuit.

Another cause of failure is a short circuit usually resulting in a blown fuse or cycling circuit breaker at the power source. A short is usually caused by the wire coming in contact with a sharp edge. The sharp edge wears the wire’s insulation away until the “hot” wire shorts to ground.

### **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 and 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 paragraphs describe methods of isolating shorts and opens. There are several other approaches that may be used; however, these may be used as a guide.

#### **Shorts**

1. Locate circuit which has short by noting fuse blown or cycling breaker.
2. Remove fuses or wire from breaker, and open all switches. Check for continuity between (+) 12 volt wire or shorted circuit and ground. (If it cannot be determined if switch is in open position, remove lead from switch.) Continuity to ground indicates there is a short.
3. Remove leads of shorted circuits from univolt and components one at a time. After disconnecting each component, check continuity of the (+) 12 volt wire to ground. If there is no continuity the short is in the component removed. If continuity still exists, continue with the following steps.
4. Inspect leads carefully where they pass through the skin or near sharp edges.
5. Note objects attached to skin after manufacturing. The mounting screws or rivets may be causing the short.
6. Remove multidome to expose main body of harness. Inspect harness for cause of short, such as rivets or screws in harness or evidence of drilling.
7. If short cannot be found, cut circuit into sections, checking each section for continuity. Shorts can be isolated by this method.
8. Examples of shorts are:
  - \* The (+) 12 volt wire contacting (-) negative wire or grounded surface.
  - \* Internal short in a 12 volt component or appliance.

## Opens

1. Check all components on circuit which has open. If all components are without power, begin to look for open on distribution panel.
2. Check for voltage on each side of the breaker. Check for tightness of crimp on connector and nut.
3. After inspecting all accessible wire on circuit for opens, remove multidome. Remove tape and inspect splices for poor connection.

A continuity light is a useful tool in locating an open. Each section of circuit can be checked for continuity. By a process of elimination the open may be found.

4. Examples of open are:

- \* Wire is cut.
- \* Connector falls off component's terminal.
- \* Loose or corroded connection.
- \* Contacts in switch do not touch.

## COMMON ELECTRICAL PROBLEMS

PROBLEM: No 12 volt power. (Lights and appliances do not work.)

- CAUSE & REMEDY:
1. Input line and/or battery not connected. Make necessary connections.
  2. Master (Kill) switch not turned on.
  3. Discharged trailer battery. Charge battery.
  4. Trailer battery on wrong polarity. Make proper connections to battery terminals.

PROBLEM: Tripping Breaker

- CAUSE & REMEDY:
1. Overloaded circuit. Turn off switches to reduce load.
  2. Electrical short. Find tripping breaker distribution panel and identify circuit. Check the circuit for defective wiring, lamps or motors.
  3. Shorted battery. Replace battery.
  4. Battery terminals not properly connected to univolt and - terminals. Make proper connections.

PROBLEM: Dim lights or sluggish fan motor.

- CAUSE & REMEDY:
1. 25- or 50- cycle power (some foreign countries). Use 60-cycle power.
  2. Discharged battery (when operating without 110 volt line) Charge battery.
  3. Battery is low on water. Add distilled water to battery.

PROBLEM: Univolt will not charge battery.

- CAUSE &  
REMEDY:
1. In put line not connected. Connect.
  2. Battery not connected or polarity reversed. Connect battery to univolt (Check polarity).
  3. Bad Battery. Replace.
  4. Too many lights and appliances. Reduce electrical load.

## 12 VOLT WIRING DIAGRAMS

In 1994 models Airstream revised their method of wiring the trailers. On previous years the main wiring harness run between the walls and branched off, again, between the walls (inner and outerskin).

The 1994 models have the main harness leaving the 12 volt distribution panel and running around the roadside wall **INSIDE** the trailer. In the area of the credenza table and going cross car between the water tanks the harness is under the floor in protective covers.

About halfway back the trailer, the main body interior harness goes up the wall and plugs into the ceiling harness. The ceiling harness runs at the corner junction of the side wall and ceiling on the curbside with branches running straight out to the lights and fans. All models are prewired for solar panel.

The following diagrams list the circuits, shows the location of the harness and gives the wire color and gauge for each function.

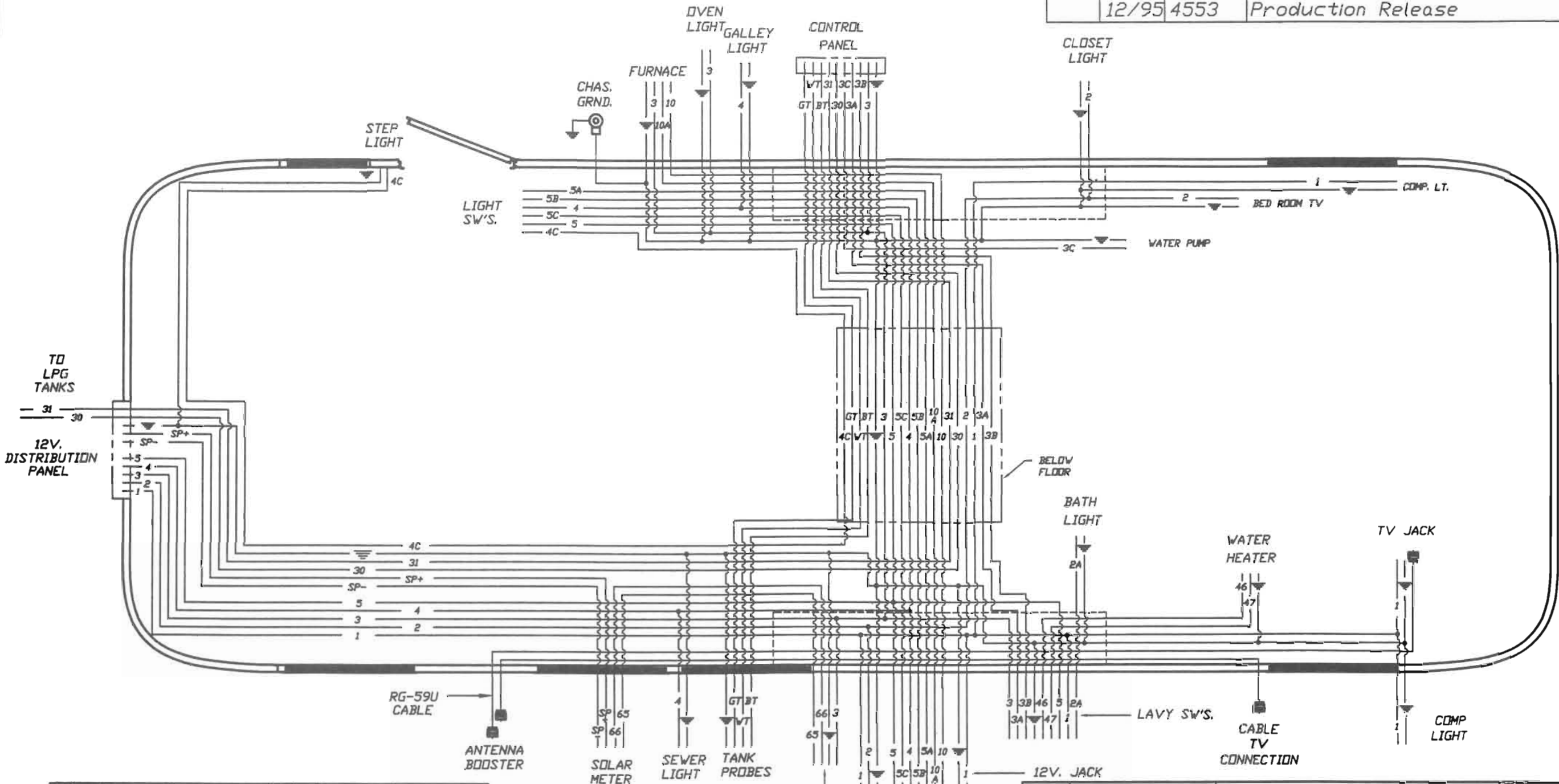
### DIAGRAMS:

25 ft.	-	body interior
25 ft.	-	ceiling
28 ft.	-	body interior
28 ft.	-	ceiling
30/31 ft.	-	body interior
30/31 ft.	-	ceiling
34 ft.	-	body interior
34 ft.	-	ceiling
taillight harness	-	all models



952560

LET	DATE	E.C.N.	REVISION RECORD	BY
	12/95	4553	Production Release	RA



No.	Co.	Color	Function	No.	Co.	Color	Function
1	12	PURPLE	12V. FEED	47	12	BLUE/VHT.	WATER HEATER
2	12	YELLOW	12V. FEED	65	14	YELLOW	+ FROM SOLAR PNL
2A	12	RED/YEL.	BATH LIGHT	66	14	GREEN	- FROM SOLAR PNL
3	12	PINK	12V. FEED	BT	18	BROWN	BLACK TANK
3A	12	ORANGE	WATER PUMP SV.	GT	18	GREEN	GRAY TANK
3B	12	ORANGE	WATER PUMP SV.	VT	18	RED	WATER TANK
3C	12	ORANGE/VHT.	WATER PUMP	SP+	12	RED	+ FROM SOLAR REG.
4	12	BROWN	12V. FEED	SP-	12	BLACK	- FROM SOLAR REG.
4C	12	BROWN/YEL.	STEP LIGHT				
5	12	BLUE	12V. FEED				
5A	12	PURPLE/YEL.	CEILING L.T.(HD)				
5B	12	PURPLE/VHT.	CEILING L.T.(LD)				
5C	12	RED/VHT.	VALANCE L.T.				
10	18	BLUE	THERMOSTAT				
10A	18	BLUE/VHT.	THERMOSTAT				
30	20	LT. BLUE/VHT.	C.S. LPG TANK				
31	20	BLUE/DRNG	R.S. LPG TANK				
46	12	BROWN/VHT.	WATER HEATER				

CONTROL PANEL  
12 PIN MOLEX CONN.

PIN NO.	COL.	COLOR
1	3	PINK
2	3	PINK
3		
4		
5		
6		
7	VT	RED
8	BT	BROWN
9	GT	GREEN
10		
11		WHITE
12		WHITE

CONTROL PANEL  
3 PIN MOLEX CONN.

PIN NO.	COL.	COLOR
1	3A	ORANGE
2	3C	ORANGE/vht.
3	3B	ORANGE

(1) 8 PIN "PACKARD" CONNECTOR  
(1) 2 PIN "PACKARD" CONNECTOR

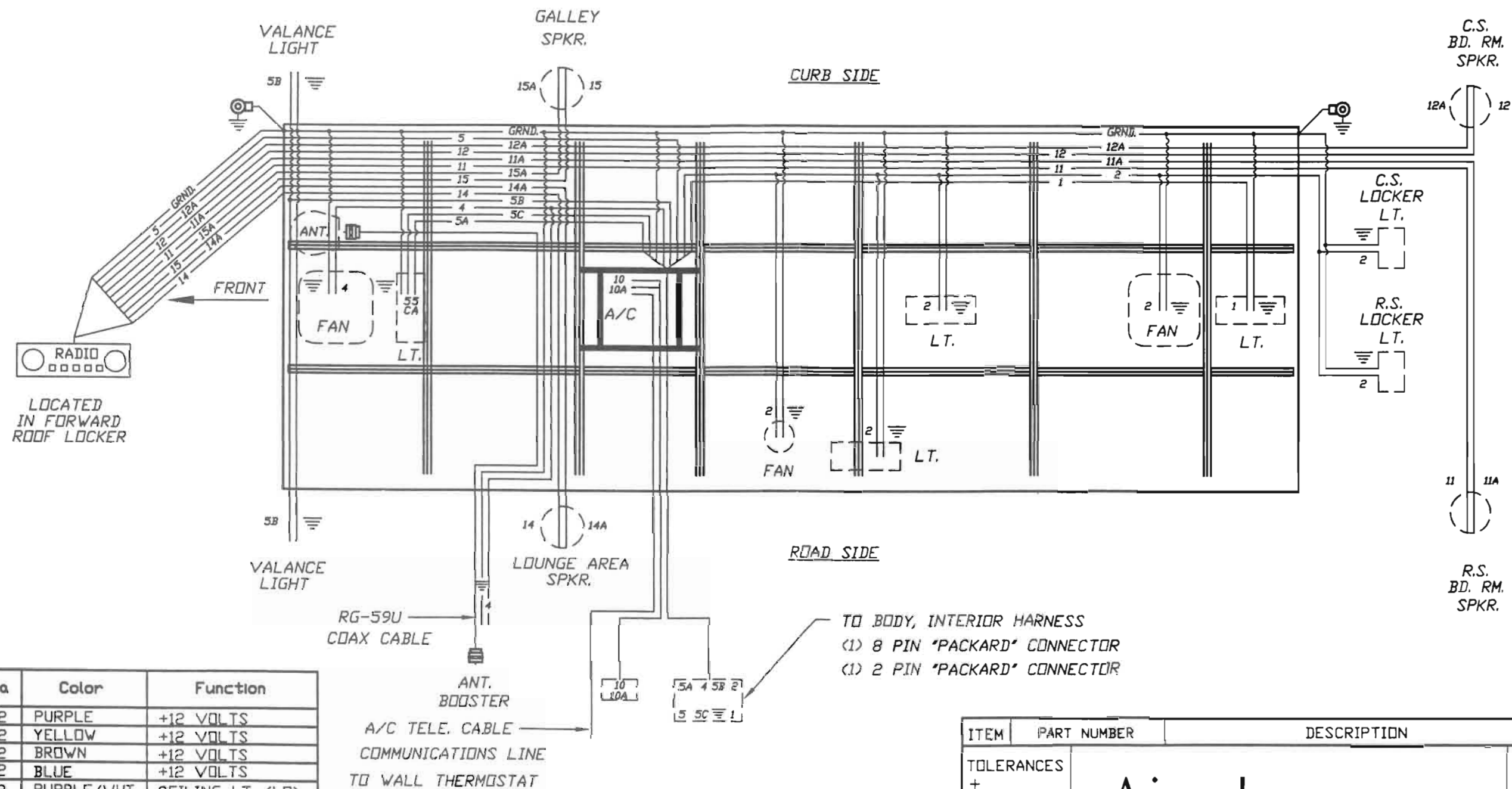
TO  
CEILING  
HARNESS

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±		Airstream	DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
		PRODUCT LINE 25' A/S Trl.		
TITLE Lay-out, 12V., Body, Interior				
SCALE 1=32	DATE 01/02/96	DRAWING NUMBER 952560	B	REV.



952559

LET	DATE	E.C.N.	REVISION RECORD	BY
	12/95	4553	Production Release	RA



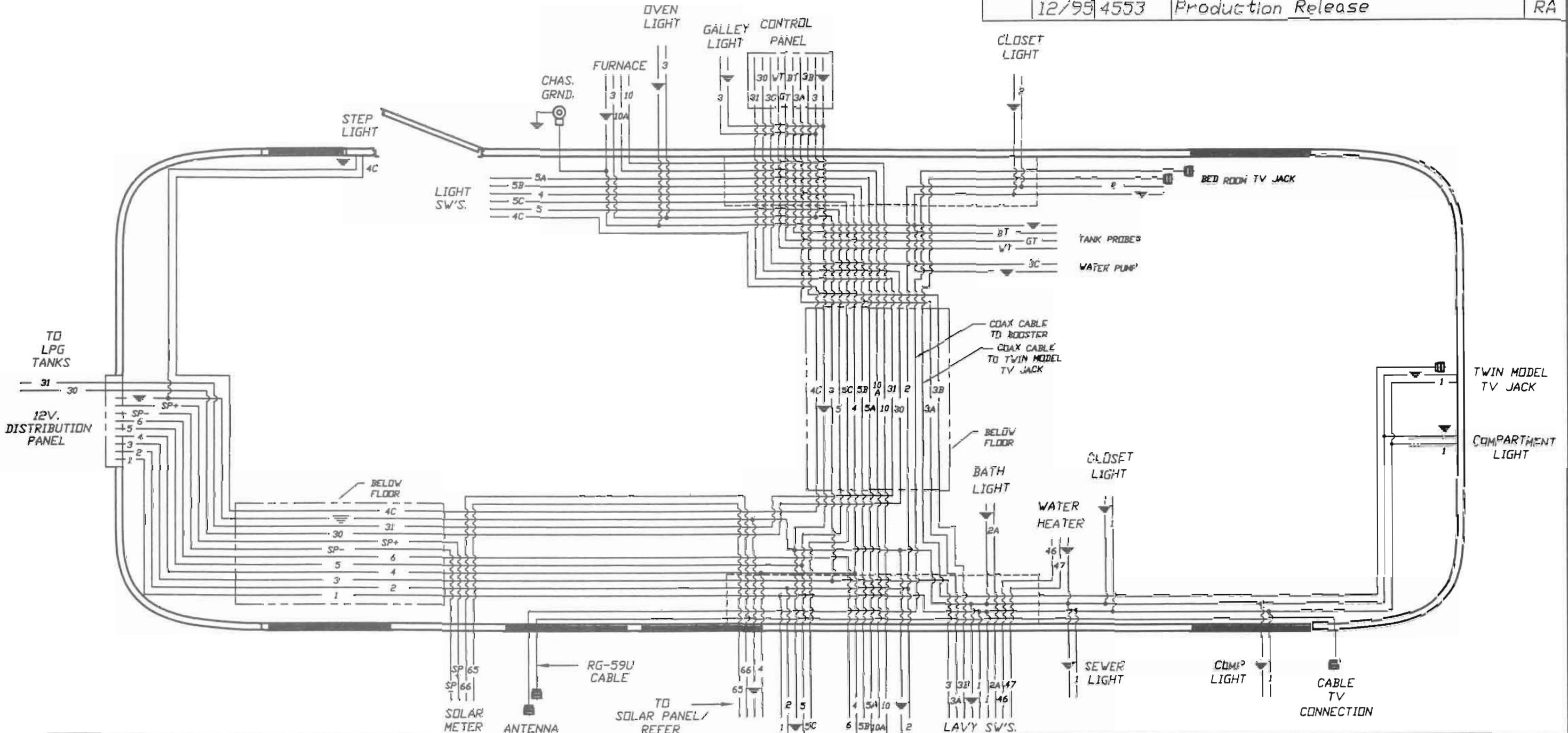
No.	Ga	Color	Function
1	12	PURPLE	+12 VOLTS
2	12	YELLOW	+12 VOLTS
4	12	BROWN	+12 VOLTS
5	12	BLUE	+12 VOLTS
5A	12	PURPLE/WHT.	CEILING LT. (LD)
5B	12	RED/WHT.	VALANCE LIGHTS
5C	12	PURPLE/YEL.	CEILING LT. (HD)
10	18	BLUE	THERMOSTAT
10A	18	BLUE/WHT.	THERMOSTAT
11	18	GRAY	R.S. SPKR.(REAR +)
11A	18	BLACK	R.S. SPKR.(REAR -)
12	18	ORANGE	C.S. SPKR.(REAR +)
12A	18	BLACK	C.S. SPKR.(REAR -)
14	18	BLUE	R.S. SPKR.(FRONT +)

No.	Ga	Color	Function
14A	18	BLACK	R.S. SPKR.(FRONT -)
15	18	RED	C.S. SPKR.(FRONT +)
15A	18	BLACK	C.S. SPKR.(FRONT -)
*	*	*	*
*	*	*	*

ITEM	PART NUMBER	DESCRIPTION	QTY	UN
TOLERANCES ±	Airstream		DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
PRODUCT LINE		25' A/S Trl.		
TITLE Lay-out, 12 Volt, Ceiling				
SCALE 1=32	DATE 12/21/95	DRAWING NUMBER 952559		B REV.



LET	DATE	E.C.N.	REVISION RECORD	BY
	12/95	4553	Production Release	RA



No.	Ga.	Color	Function	No.	Ga.	Color	Function
1	12	PURPLE	12V. FEED	47	12	BLUE/WHY.	WATER HEATER
2	12	YELLOW	12V. FEED	65	14	YELLOW	+ FROM SOLAR PNL
3A	12	RED/YEL.	BATH LIGHT	66	14	GREEN	- FROM SOLAR PNL
3	12	PINK	12V. FEED	BT	18	BROWN	BLACK TANK
3A	12	ORANGE	WATER PUMP SW.	GT	18	GREEN	GRAY TANK
3B	12	ORANGE	WATER PUMP SW.	VT	18	RED	WATER TANK
3C	12	ORANGE/WHY.	WATER PUMP	SP+	12	RED	+ FROM SOLAR REG.
4	12	BROWN	12V. FEED	SP-	12	BLACK	- FROM SOLAR REG.
4C	12	BROWN/YEL.	STEP LIGHT				
5	12	BLUE	12V. FEED				
5A	12	PURPLE/YEL.	CEILING LT. (RD)				
5B	12	PURPLE/WHY.	CEILING LT. (LD)				
5C	12	RED/WHY.	VALANCE LT.				
6	12	RED	12V. FEED				
10	18	BLUE	THERMOSTAT				
10A	18	BLUE/WHY.	THERMOSTAT				
30	20	1/2" BLUE/WHY.	C.S. LPG TANK				
31	20	BLUE/DRNG.	R.S. LPG TANK				
39	16	RED/GRN.	REFER IGN.				
46	12	BROWN/WHY.	WATER HEATER				

CONTROL PANEL  
12 PIN MOLEX CONN.

FDN NO.	COL.	COLOR
1	3	PINK
2	3	PINK
3		
4		
5		
6		
7	VT	RED
8	BT	BROWN
9	GT	GREEN
10		
11		WHITE
12		WHITE

CONTROL PANEL  
3 PIN MOLEX CONN.

FDN NO.	COL.	COLOR
1	3A	ORANGE
2	3C	ORANGE/wht.
3	3B	ORANGE

(2) 6 PIN "PACKARD" CONNECTORS  
TO  
CEILING  
HARNESS

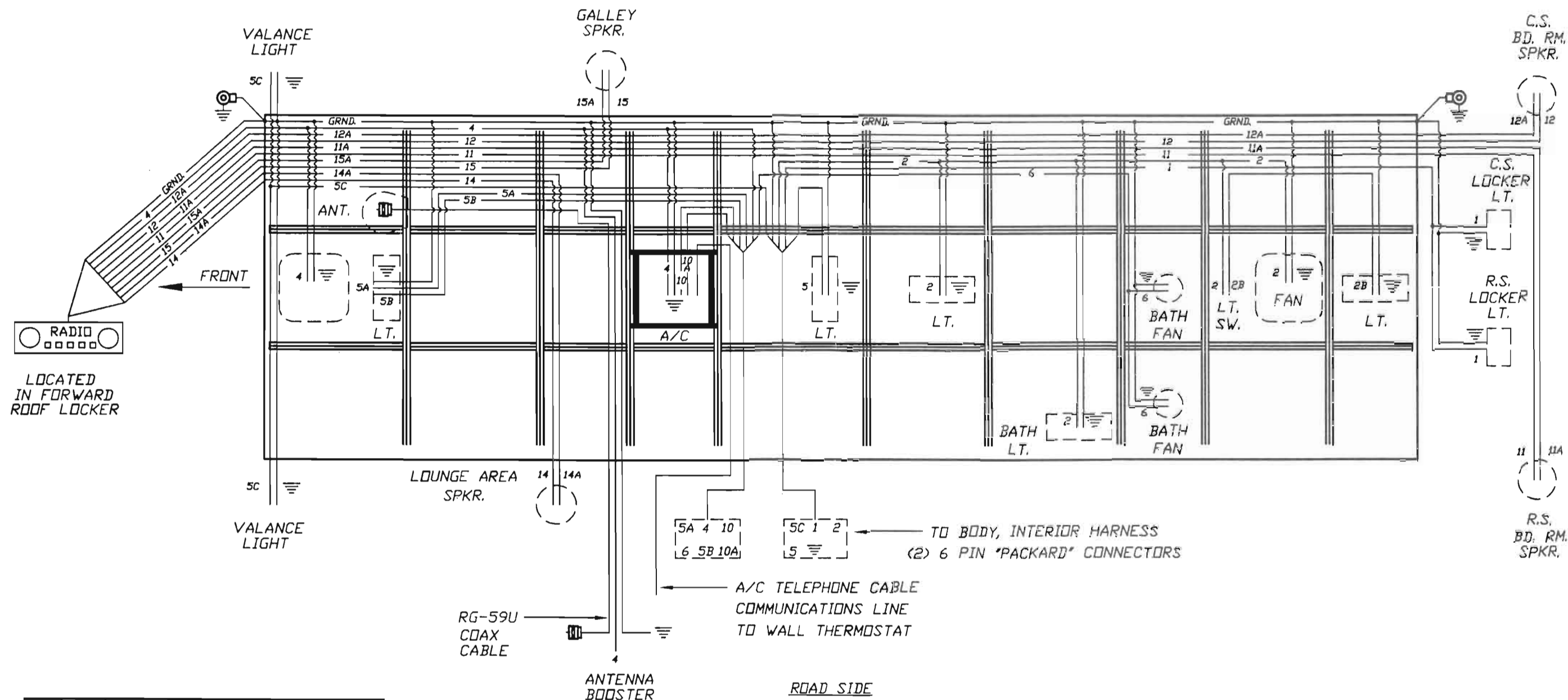
ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±		Airstream	DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
TITLE		PRODUCT LINE	28' A/S Trl.	
Lay-out, 12V., Body, Interior				
SCALE 1=32	DATE 12/14/95	DRAWING NUMBER 952558	B	REV.



952557

LET	DATE	E.C.N.	REVISION RECORD	BY
	12/95	4553	Production Release	RA

CURB SIDE



No.	Ga	Color	Function
1	12	PURPLE	+12 VOLTS
2	12	YELLOW	+12 VOLTS
2B	12	YELLOW/GRN.	REAR CEILING LT.
4	12	BROWN	+12 VOLTS
5A	12	PURPLE/WHT.	CEILING LT. (LO)
5B	12	PURPLE/YEL.	CEILING LT. (HI)
5C	12	RED/WHT.	VALANCE LIGHTS
5	12	BLUE	+12 VOLTS
6	12	RED	+12 VOLTS
10	18	BLUE	THERMOSTAT
10A	18	BLUE/WHT.	THERMOSTAT
11	18	GRAY	R.S. SPKR.(REAR +)
11A	18	BLACK	R.S. SPKR.(REAR -)
12	18	ORANGE	C.S. SPKR.(REAR +)

No.	Ga	Color	Function
12A	18	BLACK	C.S. SPKR.(REAR -)
14	18	BLUE	R.S. SPKR.(FRONT +)
14A	18	BLACK	R.S. SPKR.(FRONT -)
15	18	RED	C.S. SPKR.(FRONT +)
15A	18	BLACK	C.S. SPKR.(FRONT -)

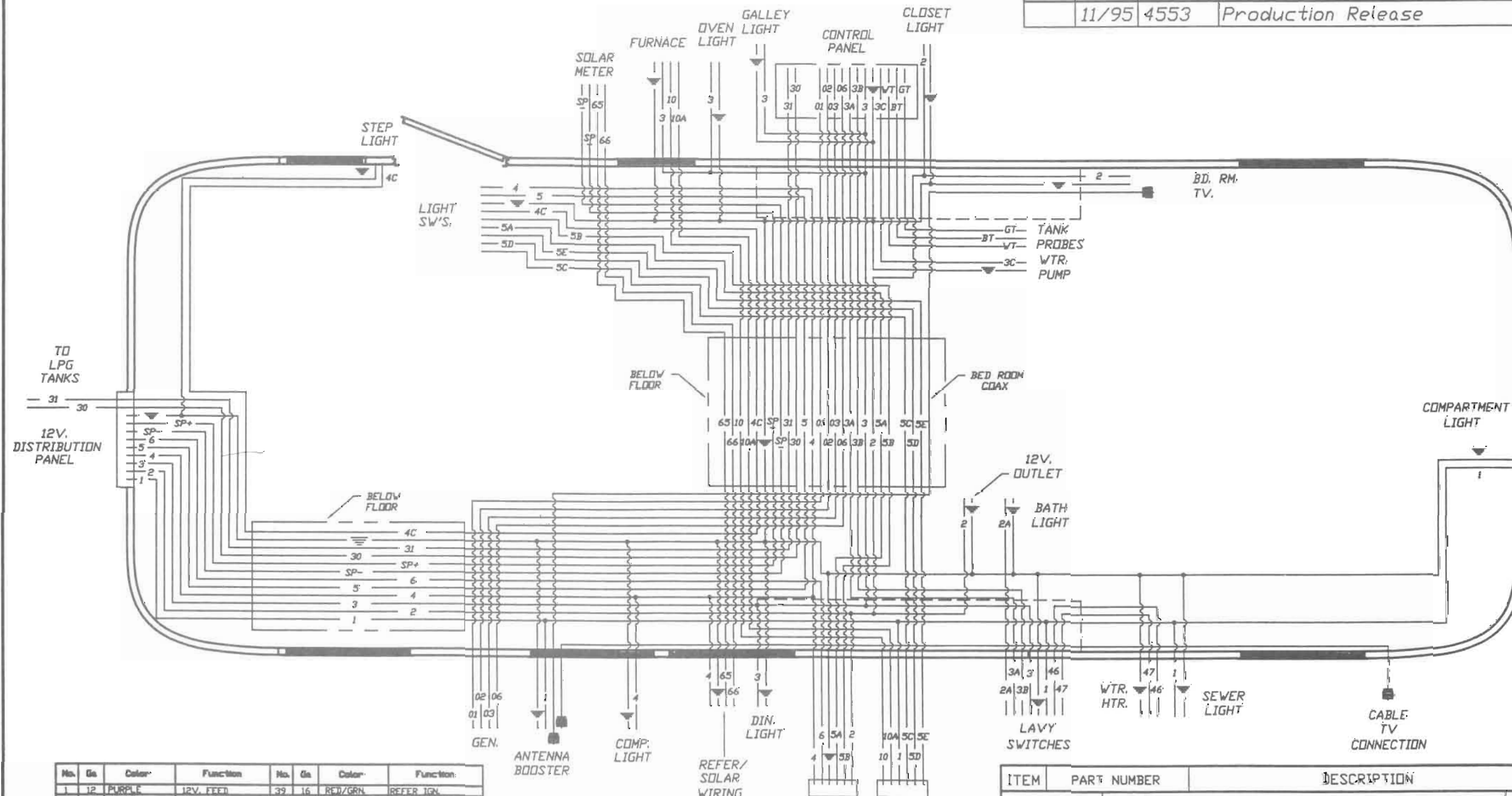
ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±	Airstream		DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
PRODUCT LINE		28' A/S Trl.		
TITLE Lay-out, 12 Volt, Ceiling				
SCALE 1=32	DATE 12/11/95	DRAWING NUMBER 952557		B REV.





952554

LET	DATE	E.C.N.	REVISION RECORD	BY
	11/95	4553	Production Release	RA



No.	Ga.	Color	Function	No.	Ga.	Color	Function
1	12	PURPLE	12V. FEED	39	16	RED/GRN.	REFER. IGN.
2	12	YELLOW	12V. FEED	46	12	BROWN/VHT.	WATER HEATER
2A	12	RED/YEL.	BATH LIGHT	47	12	BLUE/VHT.	WATER HEATER
3	12	PINK	12V. FEED	65	14	YELLOW	+ FROM SOLAR PNL
3A	12	ORANGE	WATER PUMP SV.	66	14	GREEN	- FROM SOLAR PNL
3B	12	ORANGE	WATER PUMP SV.	01	18	BLACK	GEN. (GROUND)
3C	12	ORANGE/VHT.	WATER PUMP	02	18	BROWN	GEN. (STOP)
4	12	BROWN	12V. FEED	03	18	YELLOW	GEN. (START)
4C	12	BROWN/YEL.	STEP LIGHT	06	18	RED	GEN. (HOUR METER)
5	12	BLUE	12V. FEED	07	18	BROWN	BLACK TANK
5A	12	PURPLE/YEL.	CEILING LT.(HD)	08	18	GREEN	GRAY TANK
5B	12	PURPLE/VHT.	CEILING LT.(HD)	09	18	RED	WATER TANK
5C	12	RED/VHT.	VALANCE LT.	SP+	12	RED	+ FROM SOLAR REG.
5D	12	PURPLE/BLK.	CEILING LT.(HD)	SP-	12	BLACK	- FROM SOLAR REG.
5E	12	PURPLE/RED	CEILING LT.(HD)				
6	12	RED	12V. FEED				
10	18	BLUE	THERMOSTAT				
10A	18	BLUE/VHT.	THERMOSTAT				
30	20	LY. BLUE/VHT.	C.S. LPG TANK				
31	20	BLUE/DRNG	R.S. LPG TANK				

CONTROL PANEL  
12 PIN MOLEX CONN.

PIN NO.	CDL.	COLOR
1	3	PINK
2	3	PINK
3	"	"
4	"	"
5	"	"
6	"	"
7	VT	RED
8	BT	BROWN
9	GT	GREEN
10	"	"
11	"	WHITE
12	"	WHITE

CONTROL PANEL  
4 PIN MOLEX CONN.

PIN NO.	CDL.	COLOR
1	01	BLACK
2	06	RED
3	02	BROWN
4	03	YELLOW

(2) 6 PIN "PACKARD" CONNECTORS  
TO  
CEILING  
HARNESS

CONTROL PANEL  
3 PIN MOLEX CONN.

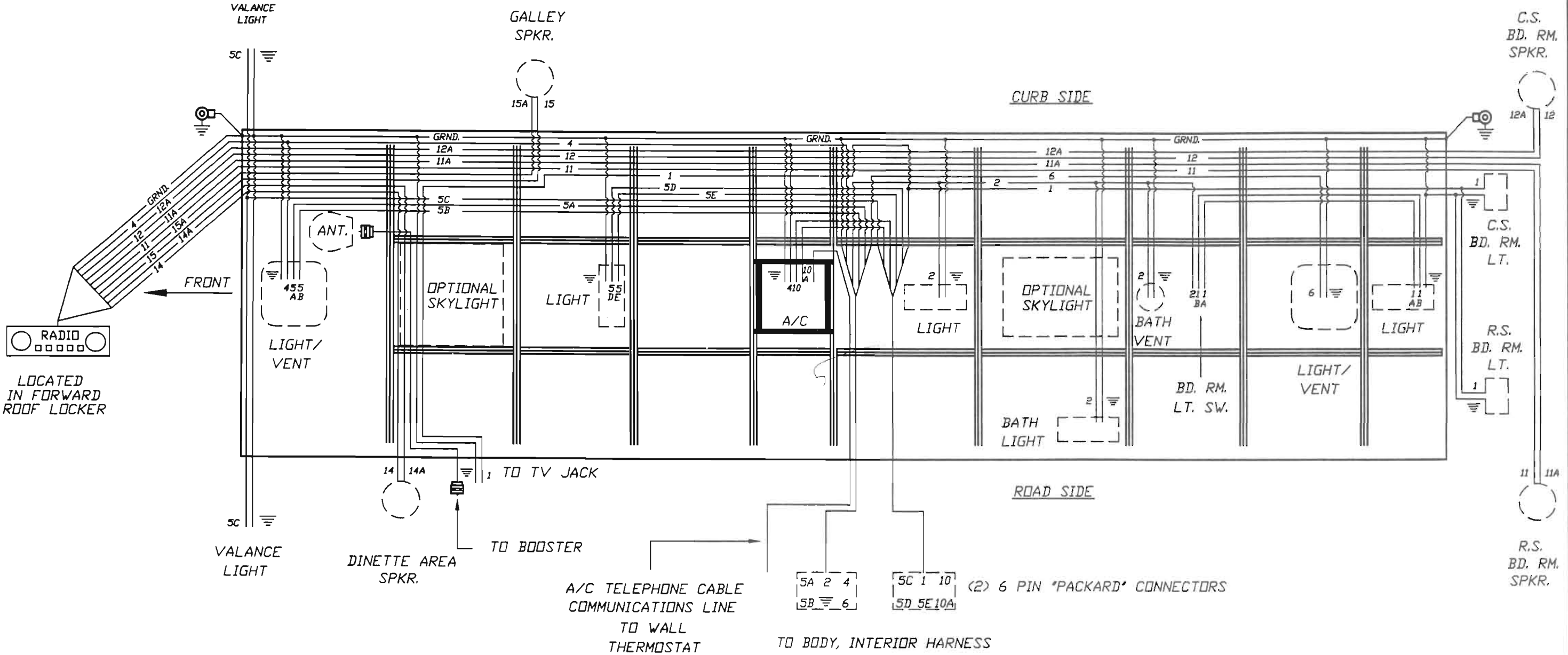
PIN NO.	CDL.	COLOR
1	3A	ORANGE
2	3C	ORANGE/VHT.
3	3B	ORANGE

ITEM	PART NUMBER	DESCRIPTION	QTY	UM	
TOLERANCES ±	Airstream		DRAWN BY R.L.A.		
NEXT ASS'Y			APPROVED BY		
PRODUCT LINE 30 & 31' A/S Trl.					
TITLE Lay-out, 12V., Body, Interior					
SCALE 1=32'	DATE 11/20/95	DRAWING NUMBER 952554		B REV.	



952553

LET	DATE	E.C.N.	REVISION RECORD	BY
	11/95	4553	Production Release	RA



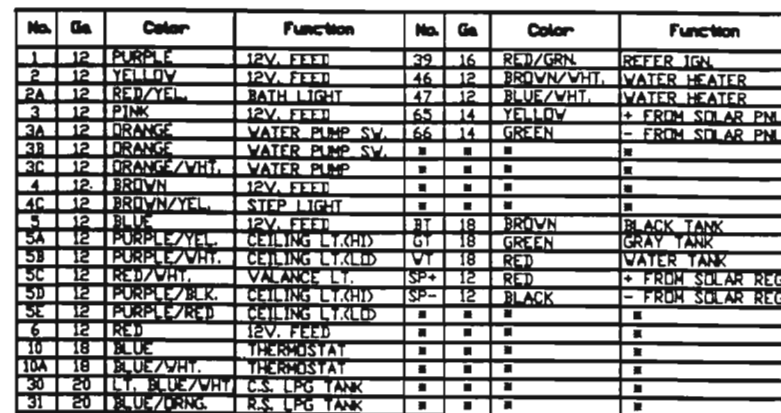
No.	Ga	Color	Function
1	12	PURPLE	+12 VOLTS
2	12	YELLOW	+12 VOLTS
4	12	BROWN	+12 VOLTS
5A	12	PURPLE/YEL.	CEILING LT. (HI)
5B	12	PURPLE/WHT.	CEILING LT. (LO)
5C	12	RED/WHT.	VALANCE LIGHTS
6	12	RED	+12 VOLTS
10	18	BLUE	THERMOSTAT
10A	18	BLUE/WHT.	THERMOSTAT
11	18	GRAY	R.S. SPKR.(REAR +)
11A	18	BLACK	R.S. SPKR.(REAR -)

No.	Ga	Color	Function
12	18	ORANGE	C.S. SPKR.(REAR +)
12A	18	BLACK	C.S. SPKR.(REAR -)
14	18	BLUE	R.S. SPKR.(FRONT +)
14A	18	BLACK	R.S. SPKR.(FRONT -)
15	18	RED	C.S. SPKR.(FRONT +)
15A	18	BLACK	C.S. SPKR.(FRONT -)
1A	12	YELLOW/GRN.	CEILING LT.(HI)
1B	12	YELLOW/RED	CEILING LT.(LO)
5D	12	PURPLE/BLK.	CEILING LT.(HI)
5E	12	PURPLE/RED	CEILING LT.(LO)
*	*	*	*

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±	Airstream		DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
		PRODUCT LINE 30 & 31' A/S Trl.		
TITLE Lay-out, 12 Volt, Ceiling				
SCALE 1=32	DATE 12/05/95	DRAWING NUMBER 952553		B REV.



REFER	DINETTE LIGHT	LET	DATE	E.C.N.	REVISION RECORD	BY
TD 65	CLOSET LIGHT		12/95	4553	Production Release	RA



PIN NO.	CDL	COLOR
1	3	PINK
2	3	PINK
3	■	■
4	■	■
5	■	■
6	■	■
7	WT	RED
8	BT	BROWN
9	GT	GREEN
10	■	■
11	≡	WHITE
12	≡	WHITE

PIN NO.	COL.	COLOR
1	3A	ORANGE
2	3C	ORANGE/wht.
3	3B	ORANGE

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±		Airstream	DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
		PRODUCT LINE 34' A/S Trl.		
TITLE Lay-out, 12V., Body, Interior				
SCALE 1=32	DATE 11/20/95	DRAWING NUMBER 952556		B REV.



LET	DATE	E.C.N.	REVISION RECORD	BY
	11/95	4553	Production Release	RA



ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±	Airstream		DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
PRODUCT LINE		34' A/S Trl.		
TITLE Lay-out, 12 Volt, Ceiling				
SCALE 1=32	DATE 12/05/95	DRAWING NUMBER 952555		B REV.

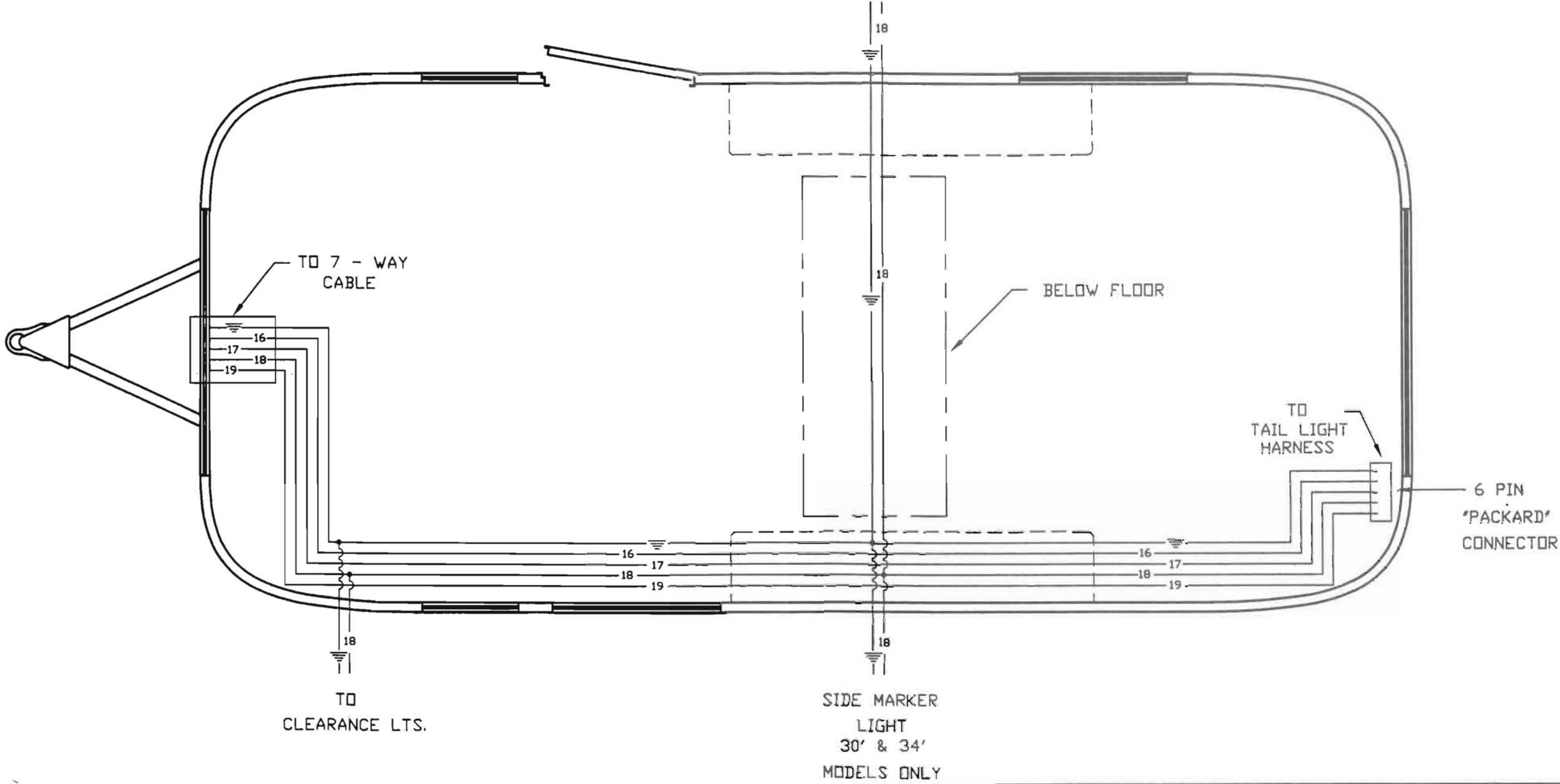




952552

SIDE MARKER  
LIGHT  
30' & 34'  
MODELS ONLY

LET	DATE	E.C.N.	REVISION RECORD	BY
	11/95	4553	Production Release	RA



TO  
CLEARANCE LTS.

SIDE MARKER  
LIGHT  
30' & 34'  
MODELS ONLY

NOTE:  
1. THIS IS NOT A SEPARATE HARNESS, BUT IS  
INCORPORATED IN THE BODY, INTERIOR HARNESS.

No.	Ga	Color	Function
16	14	BLACK	BACK-UP LIGHTS
17	14	RED	LT. TURN & STOP
18	14	GREEN	CLR. & TAIL LTS.
19	14	BROWN	RT. TURN & STOP
≡	14	WHITE	CHASSIS GROUND

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±	Airstream		DRAWN BY R.L.A.	
NEXT ASS'Y			APPROVED BY	
		PRODUCT LINE	Trailer - All	
TITLE Lay-out, Tail Light Harness				
SCALE 1=32	DATE 12/05/95	DRAWING NUMBER 952552		B REV.



## 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

1. 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.

**Raising Antenna**



**Rotating Antenna**



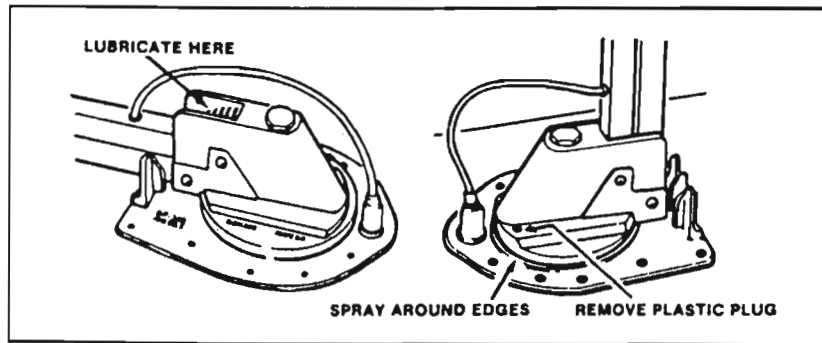
**Lowering Antenna**



## 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 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).

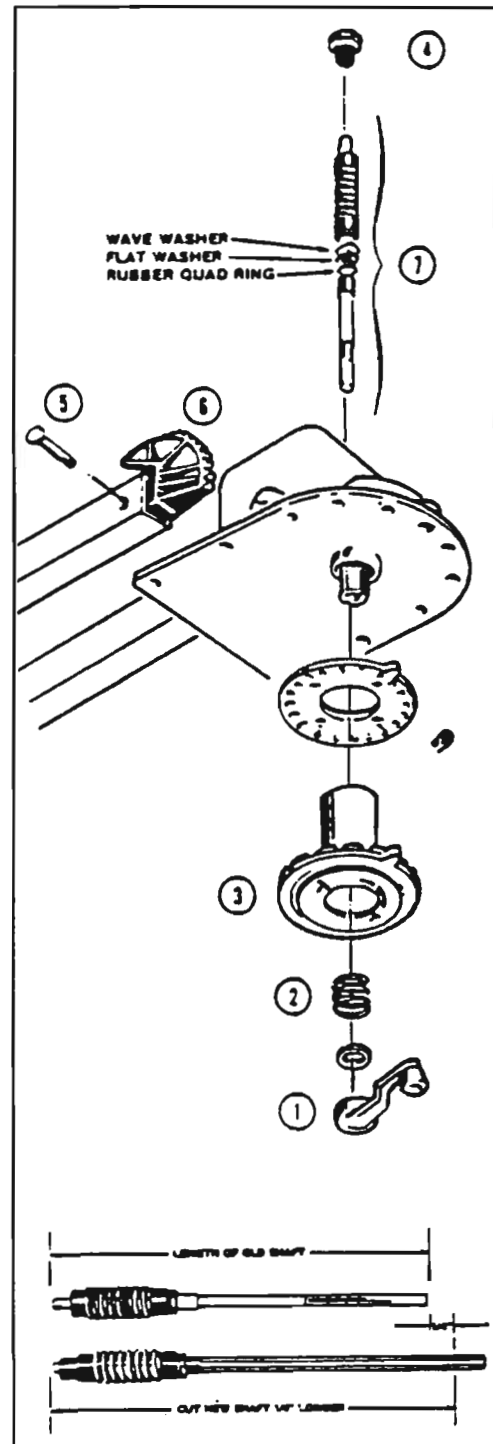
**Note:** Make sure all parts below worm gear are removed from rotating gear housing. These include bearing, quad ring and one or two washers.

**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.

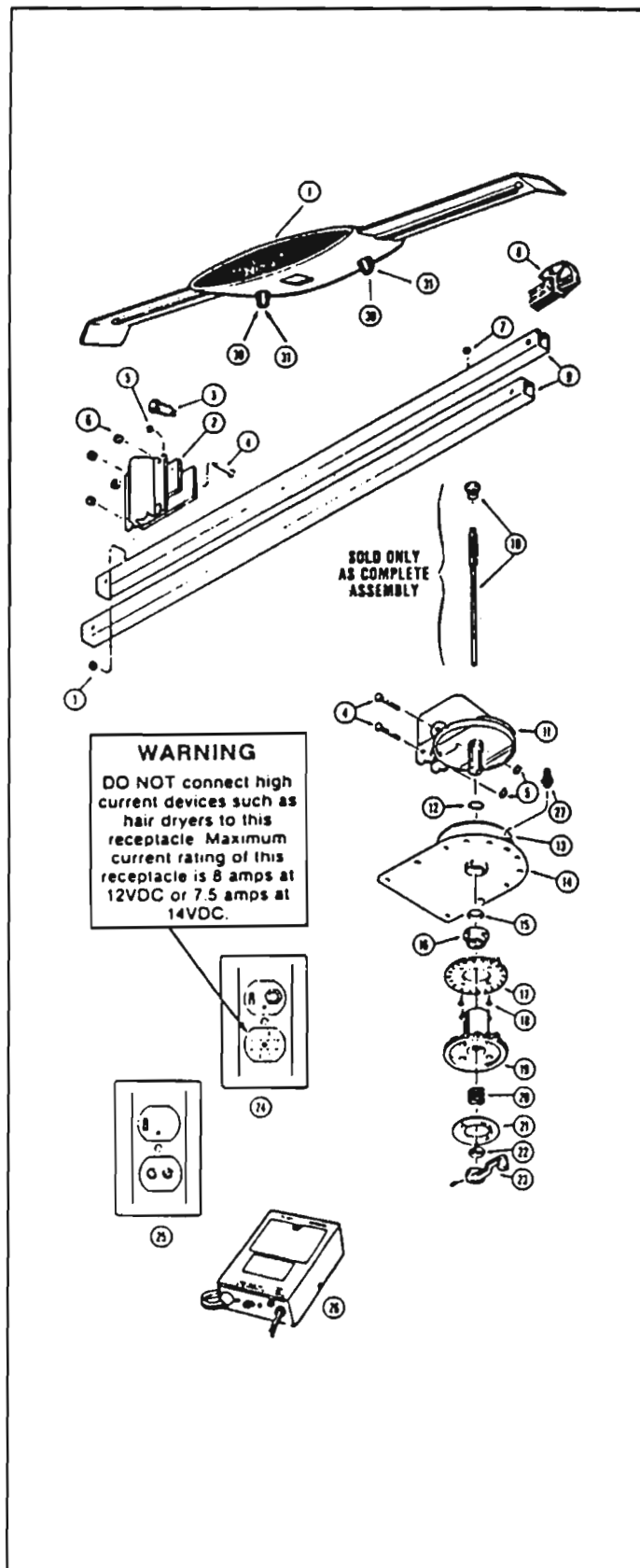
**STEP 8:** Replace directional handle, spring and elevating crank.



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 PANEL PREWIRE

All trailers are pre-wired for solar panel installation. Pre-wired trailers will have green and yellow wires coiled in the exterior refrigerator access compartment.

The green and yellow wires run from the refrigerator to the mounting location of the solar panel control module. Also found at the control module are red and black wires. The red and black run to the 12 volt distribution in the front of the trailer.

The most common panel installation is to mount the panels on the roof and run the wires down the refrigerator vent where they can be attached to the green and yellow wires.

Next the control module is mounted (locations given below) and the four wires; yellow and green from the panels and red and black to the distribution panel are connected.

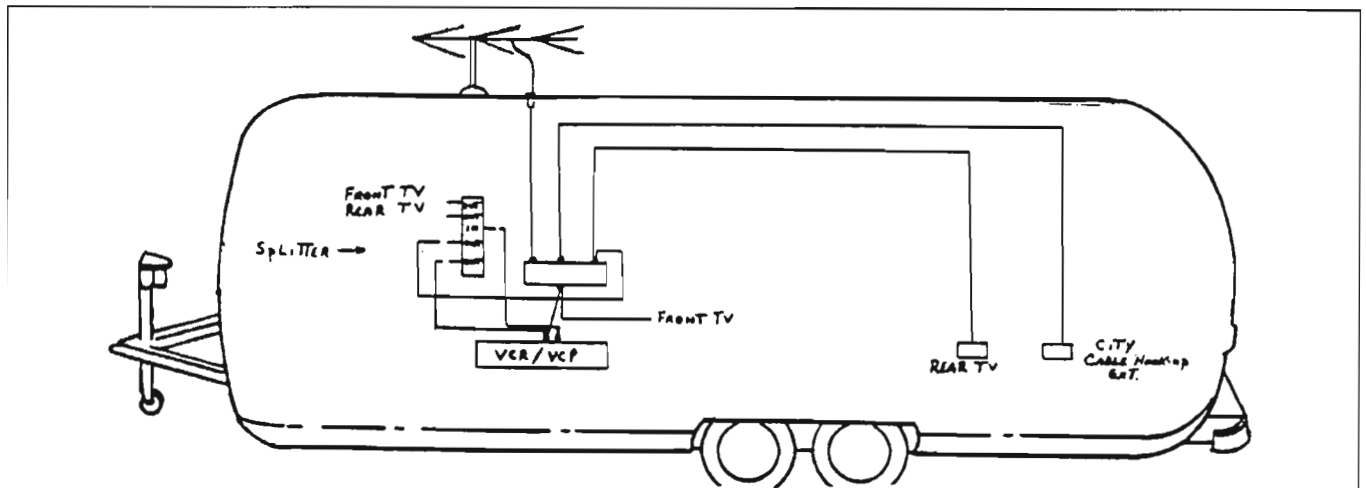
The last step is to connect the red and black wires to the 12 volt distribution panel.

**CAUTION: The red wire must be fused with a 10 amp in-line fuse at the 12 volt positive. The black wire is for ground.**

Location of wires for control module

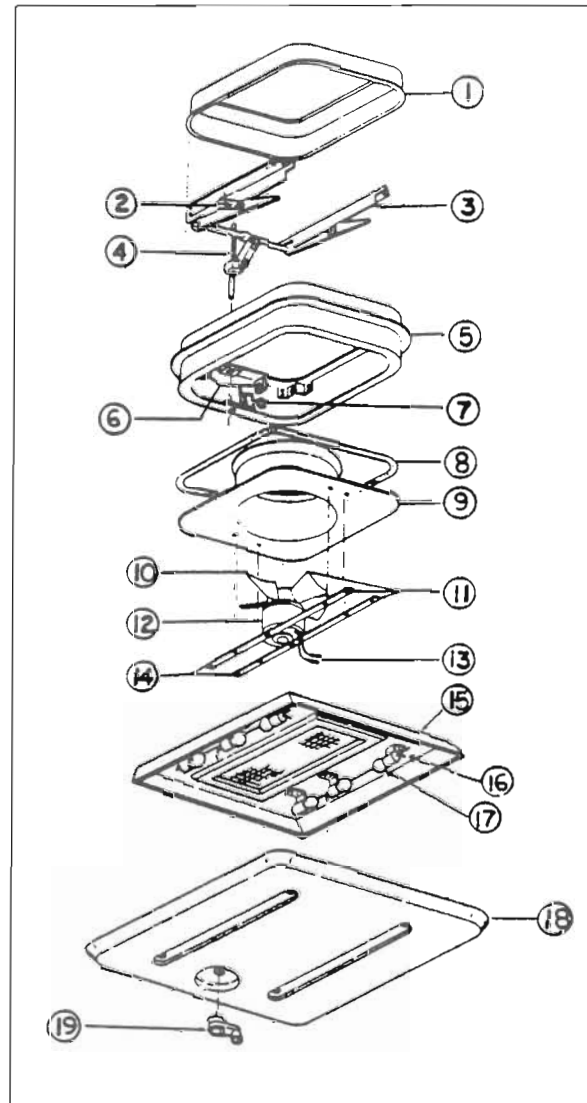
- 25 ft. - wires are inside the credenza cabinet on the roadside
- 28 ft. - wires are in the micro-wave cabinet forward of refrigerator
- 30/31 ft. - wires in galley cabinet behind switches just inside main door
- 34 ft. side bath - in galley cabinet on roadside towards front

## COAXIAL CABLE WIRING SCHEMATIC



## COMBINATION CEILING LIGHT & VENT ASSEMBLY

1. Vent Cover
2. Spring, vent mechanism
3. Vent linkage assembly
4. Elevator screw
5. Vent frame
6. Support Blocks
7. Fan micro switch
8. Gasket, vinyl foam
9. Vent shroud
10. Fan blade
11. Power kit assembly
12. Fan motor
13. Terminal, Bulb
14. Support brackets, motor
15. Light base with screen
16. Lamp socket
17. Bulb 1141-F (Frosted)
18. Light shade
19. Crank handle



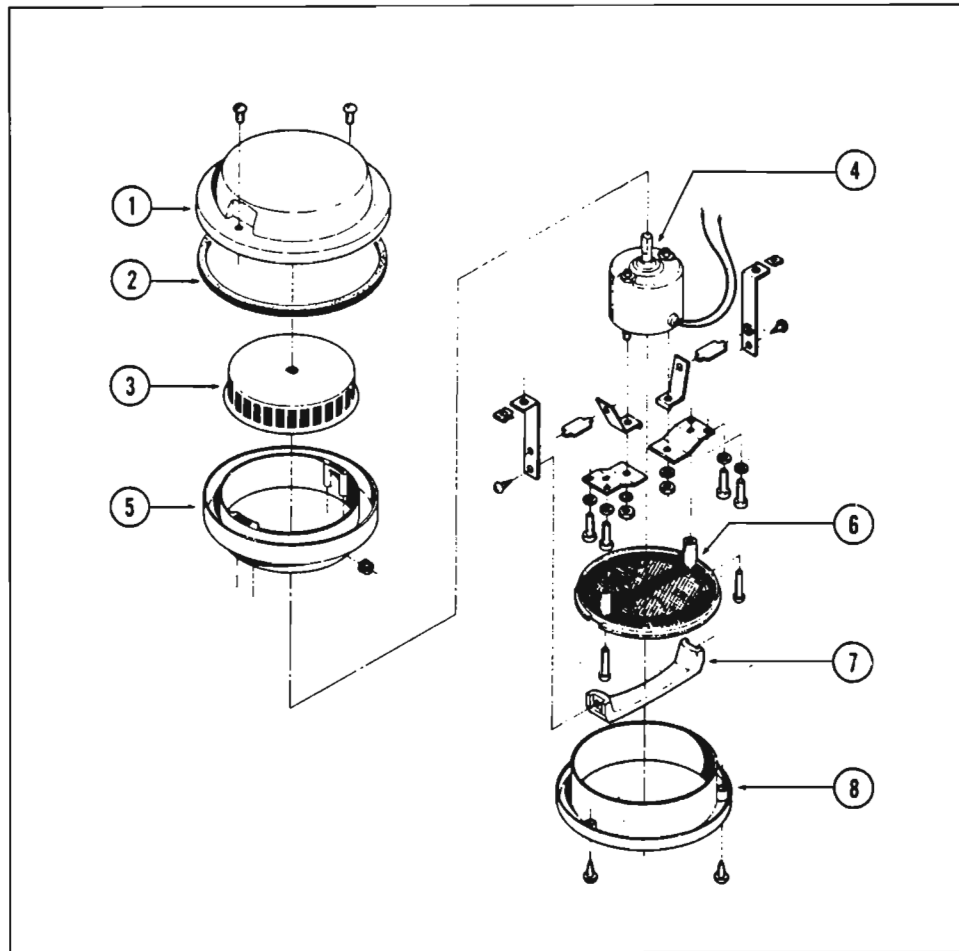
### Bulb Replacement

1. Remove crank handle.
2. Remove four screws holding light shade to base.
3. Depress bulb down into socket and turn counterclockwise approximately one quarter turn.
4. Pull bulb out of socket. Number 1141 F frosted bulbs are normally used, but you may use #1141 clear bulbs if you desire.

### Fluorescent Bulbs

The optional fluorescent bulbs are just as easy to replace. Remove lens as described above, then turn bulb one quarter turn in either direction. Pull bulb straight down. The replacement bulb is GE F1 4T8-CW or equivalent.

## BATHROOM EXHAUST FAN ASSEMBLY



- |                         |                   |
|-------------------------|-------------------|
| 1. Cover Assy w/gaskets | 5. Ring Body Assy |
| 2. Gasket Assy          | 6. Grille Assy    |
| 3. Blower wheel Assy    | 7. Handle Assy    |
| 4. Motor Assy           | 8. Trim Ring Assy |

### Removal and Replacement

1. Working from the outside top of trailer remove the screws holding the fan protective cap, and remove the cap.
2. Remove the 6 screws securing the fan flange to the outer skin.
3. Pull the fan out to the extent of the wiring harness and unplug the harness.
4. Remove the fan assembly.
5. To install, reverse the removal procedures.



## MONITOR PANEL

Phillips Product  
Vent Line/LVS Division  
Hwy. 15 South  
Bristol, IN 46507  
Phone: 219-848-4491

### Operation

To check tank capacities or battery condition depress the switch marked "monitor". In order to obtain a true reading on the batteries you must be unplugged from city power and disconnected from your tow vehicle. Holding tank 1 is the black tank and tank 2 is the grey (drain water) tank.

The two speed "Hood Fan" has an exterior door that must be unlatched to be effective. You'll see the two small twist latches if you look at the fan from outside the motorhome. In most circumstances you can leave the door unlatched. During storage or adverse weather conditions latching the door is recommended.

### Trouble Shooting Guide

Be sure the wiring to the panel is correct and that the house battery is well charged. All electrical connections must be correct.

**NOTE:** RV's are subjected to a lot of vibration from traveling on the highways, so always look for broken wires and loose or broken connections.

**NOTE:** If a RV has exposed holding tanks under the vehicle and the vehicle is operated in the rain, sleet or snow, the panel may show incorrect tank levels due to electrical conductivity on the outside of the tanks. Washing the tanks and sealing the connections on the outside of the well nuts with silicon sealer should correct this condition.

**PROBLEM:** Fan does not operate.

**CAUSES:**

- A. No voltage to switch.
- B. Defective switch, defective motor.

**REMEDY:**

- 1. Check for voltage, test switch, test motor.

**PROBLEM:** Fan operates on high speed but not on low speed.

**CAUSES:**

- A. Defective circuit board.

**REMEDY:**

- 1. Replace circuit board.

**PROBLEM:** Hood light does not operate.

**CAUSES:**

- A. Burned out bulbs.
- B. No voltage to switch
- C. Defective switch.

**REMEDY:**

- 1. Test for voltage.
- 2. Test switch.
- 3. Test bulbs.

PROBLEM: Water pump does not operate.

CAUSES:

- A. No voltage to pump.
- B. Defective switch or pump.
- C. Pump not grounded.

REMEDY:

- 1. Test for voltage at switch.
- 2. Check ground.

PROBLEM: Water pump operates but red indicator light does not come on.

CAUSES:

- A. Faulty LED.
- B. Faulty circuit board.

REMEDY:

- 1. Replace circuit board.

PROBLEM: "E" LED shows but indicator lights for amount of liquid in tank don't show.

CAUSES:

- A. Faulty connection in lead to tank.
- B. Faulty circuit board.

REMEDY:

- 1. Check leads and connections at tank.
- 2. Replace circuit board.

PROBLEM: Condition of battery is not indicated when switch is pushed.

CAUSES:

- A. Faulty switch.
- B. Faulty circuit board.
- C. Circuit board not grounded.
- D. Dead battery.

REMEDY:

- 1. Test switch, check ground.
- 2. Change circuit board.
- 3. Charge battery.

PROBLEM: No "E" light on water tanks when switch is pushed.

CAUSES:

- A. No power to panel.
- B. Defective circuit board.

REMEDY:

- 1. Check fuses and power leads.
- 2. Repair or replace panel.

PROBLEM: Improper level indication on one or two tanks.

CAUSES:

- A. Faulty wiring from panel to sensors.
- B. Faulty circuit board.
- C. Dirty sensors and/or tank.

REMEDY:

- 1. Check wiring to sensors.
- 2. Clean sensors and tank.
- 3. Replace tank sensor harness.
- 4. Replace or repair circuit board.

**PROBLEM:** Improper level indication on all water tanks.

**CAUSES:** A. Faulty circuit board.

**REMEDY:** 1. Replace or repair circuit board.

**PROBLEM:** Panel shows LPG tank to be full all of the time.

**CAUSES:** A. Connection between tank and panel faulty.

B. Poor or no ground between tank and vehicle.

C. Faulty tank sending unit or faulty circuit board.

**REMEDY:** 1. Check and repair wiring from tank to panel and tank to ground.

2. Repair or replace tank sending unit.

3. Repair or replace circuit board.

**PROBLEM:** Panel shows LPG tank to be empty all of the time.

**CAUSES:** A. Short to ground in wire between panel and tank sending unit.

B. Faulty tank sending unit.

C. Faulty circuit board.

**REMEDY:** 1. Repair shorted wire.

2. Repair or replace sending unit.

3. Repair or replace circuit board.

**NOTE:** If the wire from the panel is removed from the tank, the panel indicator should show the tank full. If the panel wire to the tank is grounded, the panel should show the tank empty.

**PROBLEM:** Appliance switches on panel appear not to work.

**CAUSES:** A. Faulty switch.

B. No voltage to switch.

**REMEDY:** 1. Remove panel to expose switches.

2. Test operation of switches with an ohm meter, volt meter or a 12 volt test light.

**PROBLEM:** Appliance switches make contact and voltage is available but appliance does not operate.

**CAUSES:** A. Faulty wiring from panel to appliance.

B. Faulty appliance.

**REMEDY:** 1. Check wiring to appliances.

2. Troubleshoot and repair or replace according to the appliance manual.

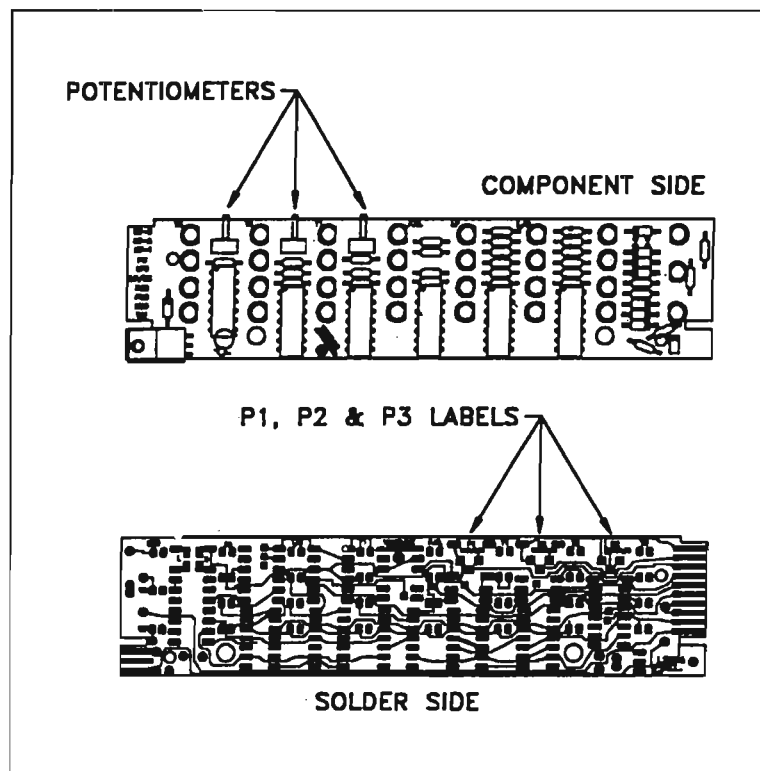
**NOTE:** When voltage is not available when and where it should be, check for loose or blown fuses and/or for tripped circuit breakers.

## ADJUSTMENT INSTRUCTIONS FOR VENTLINE ADJUSTABLEBOARDS™

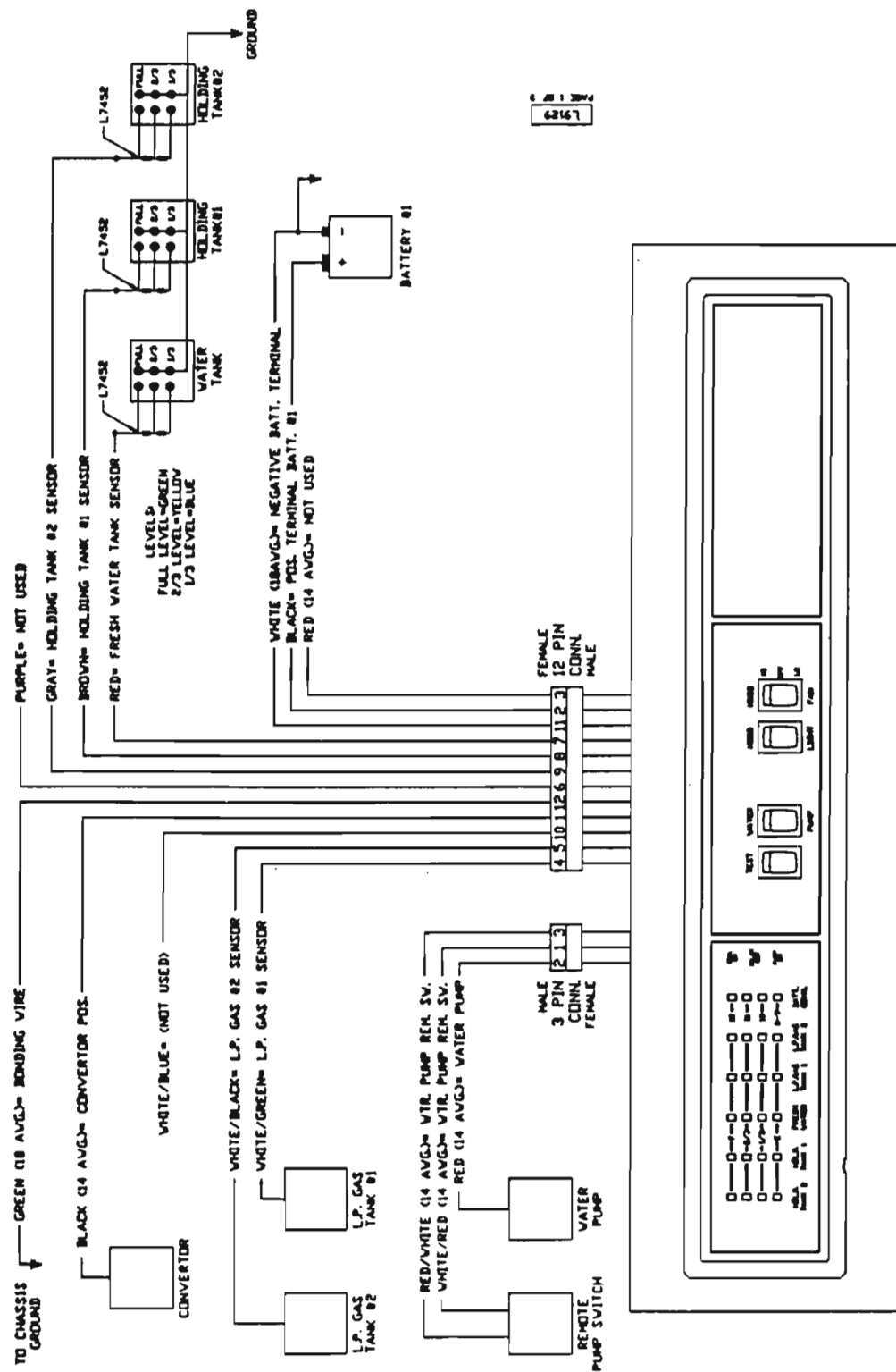
Ventline's latest printed circuit boards (PCB's) are equipped with potentiometers (pots) that allow the holding tank sensitivity to be adjusted. This adjustment is sometimes necessary to compensate for the difference in conductivity between liquids in the holding tanks. The intent of this feature is to compensate for minor fluctuations in the mineral content of the water, not to be used in place of regular maintenance of the holding tanks. The pots should not be adjusted to compensate for dirty holding tanks. A buildup of grease, soap by-products, etc. will cause a path of least resistance in the holding tank and cause the system to be oversensitive. The holding tanks should be cleaned regularly as recommended by the tank manufacturer. See section G of this manual.

The PCB's have one pot installed for each holding tank, they are located towards the top of the PCB. Each pot is identified on the back of the PCB with P1, P2, or P3 (ie, P1 = corresponds to the pot for holding tank 1). The monitor panel pots are initially set with the wiper blade fully clockwise. If a holding tank reading is oversensitive (the LED's are reading higher than the actual tank water level), the pot should be adjusted counterclockwise until the LED's read the correct level. Care should be taken not to force the pot past it's wiper blade limits. It is not necessary to remove the PCB from the monitor panel chassis to make these adjustments.

If you have any further questions regarding this subject, please contact Ventline Engineering at (219) 848-4491.



# MONITOR PANEL WIRING



- NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL WIRE IS 20 AWG.
  2. THE "T" INDICATION REQUIRES NO SENSOR.
  3. THE L.P. GAS TANKS EACH REQUIRE A 90 OHM SENSING UNIT.
  4. REF. BUGC. PANEL = L9129
  5. INTER. MARK = L7281, POSTAL = L7284
  6. REM. PUMP INTER = L7159-82, PIC = L7159-81
  7. EXT. BUC = L5089-83, FAULT, MARK = L7218
  8. TJA = L7452 (3 EACH)

## 110 VOLT ELECTRICAL SYSTEM

### City Power

The Airstream univolt system enables you to use the lights and appliances whether operating on self-contained battery power or hooked up to 110 volt city power. The 12 volt light bulbs give off the same light as regular household bulbs, so that when operating on self-contained battery power, everything works normally except the 110 volt convenience outlets and 110 volt appliances.

Exterior outlets for 110 volts are located on the curbside exterior wall between the wheels and above the wheel well.

**CAUTION:** When operating with city power make very certain that the service is 110 volt and not 220 volt.

The univolt system is a transformer designed to maintain constant output voltages regardless of the variances that occur in city power systems. The transformer design eliminates the need for complex electronic sensing systems to charge the battery, minimizing the possibility of failures and greatly increasing its overall reliability.

### Convertor Switch

On the wall behind the curbside front curved window is a wall switch for turning off the convertor. Some people are very sensitive to the "hum" produced by the convertor and have requested this switch. With this switch off, your batteries will be discharging, so it should only be used for short periods of time when lights and appliances aren't being operated.

**CAUTION:** Your Airstream has a gas/electric water heater. Make sure the 110 volt water heater switch in the bathroom is turned off when you plug your trailer in to city power. If your plumbing and water heater are full of water the switch may be left in the on position.

**WARNING:** When the three pronged plug can be used there will be no problems with proper polarity or grounding.

In some older parks and other locations where three pronged outlets are not available, certain precautions to insure proper grounding and polarity must be taken. These precautions are listed below:

1. Attach the three pronged plug to a two pronged adapter. The third conductor line of this adapter has a short wire lead which must be grounded.
2. For proper grounding connect the short ground lead to a grounded outlet box or to a cold water pipe. When no water pipe is available drive a metal rod two feet into the ground and attach the ground lug to it, thus providing the unit with proper grounding.

To operate self-contained, simply disconnect the power supply cable.

When your trailer is hooked up to 110 volt AC the univolt system automatically charges the trailer batteries; and, if it is hooked up, your automobile battery as well. The speed and degree of charge depends on how much power is used for lights and appliances, as only the surplus goes to charging the battery. If you are making an extended stay, then you should, if it is available, keep your trailer hooked up to a 110 volt current.

Circuit breakers for the 110 volt system are located in the roadside rear corner of the trailer. In most instances they are in the overhead rear cabinet. Trailers with CSA approval may have the circuit breaker box under the bed or lower cabinet.

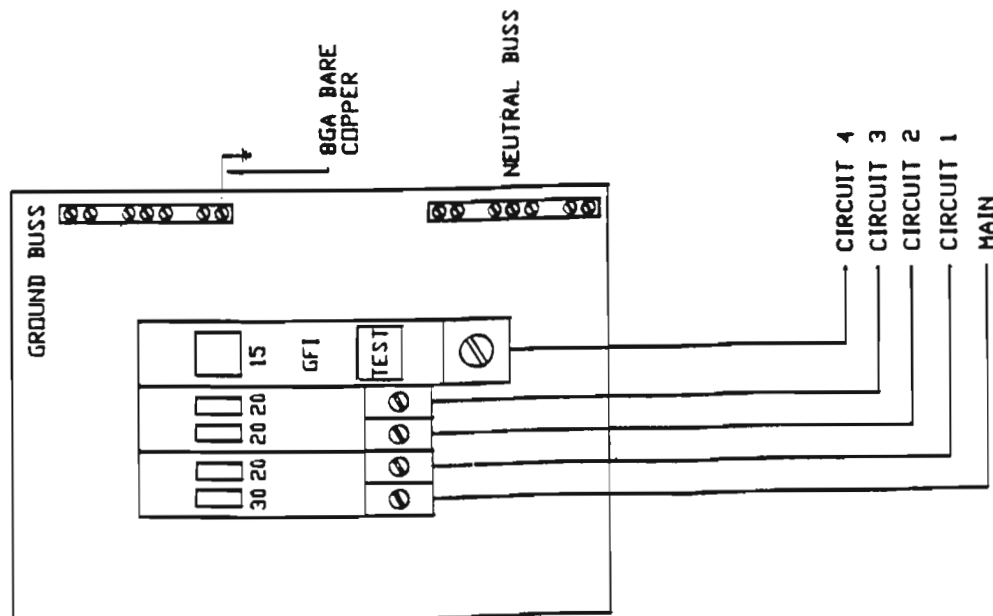
While you are connected to the 110 volt receptacle the wiring is protected by circuit breakers in the breaker panel. In the event of a failure of a 110 volt circuit check your circuit breakers first. If a breaker continues to trip after you have reset it several times, your circuit may be overloaded with appliances or there may be a short in the circuit. The 110 volt switch on the water heater, with its 12 amp draw, would be one of the easiest places to reduce the load on 110 volt circuits. If lessening the load does not solve the problem consult an Airstream Service Center.

The 110 volt electrical system provides power to operate the air conditioner, univolt converter and 110 volt receptacles for portable appliances. The power is carried through the 110 volt city power flexible cord to the 110 volt distribution panel, and then is distributed to each appliance or receptacle.

All wire, components and wiring methods conform to federal and state requirements.

# TYPICAL 110 VOLT BREAKER PANEL

WESTINGHOUSE TT 120 ELGNH 120 VAC  
CLASS CTL ENCLOSED PANELBOARD



## MAIN

CIRCUIT 1, 20 AMP HACR BREAKER, 12-2 ROMEX W/GROUND, FRONT/REAR A/C'S.

CIRCUIT 2, 20 AMP HACR BREAKER, 12-2 ROMEX W/GROUND, BEDROOM, CONVERTER, LIVING AREA.

CIRCUIT 3, 20 AMP HACR BREAKER, 12-2 ROMEX W/GROUND, MICROWAVE

CIRCUIT 4, 15 AMP GFI BREAKER, 12-2 ROMEX W/GROUND, LEG 1, BATH, OUTSIDE, REFER, GALLEY AREA, DINETTE.

## USAGE:

A/S TRAILERS-25'SB, 28'SB

30'FK, 30'SB, 34'SB

A/S MOTORHOMES-360, 360 PUSHER

LAND YACHT MOTORHOMES-30'SB, 33'SB,

34'SB PUSHER, 36'SB

LAND YACHT LE-30'SB, 34'SB,

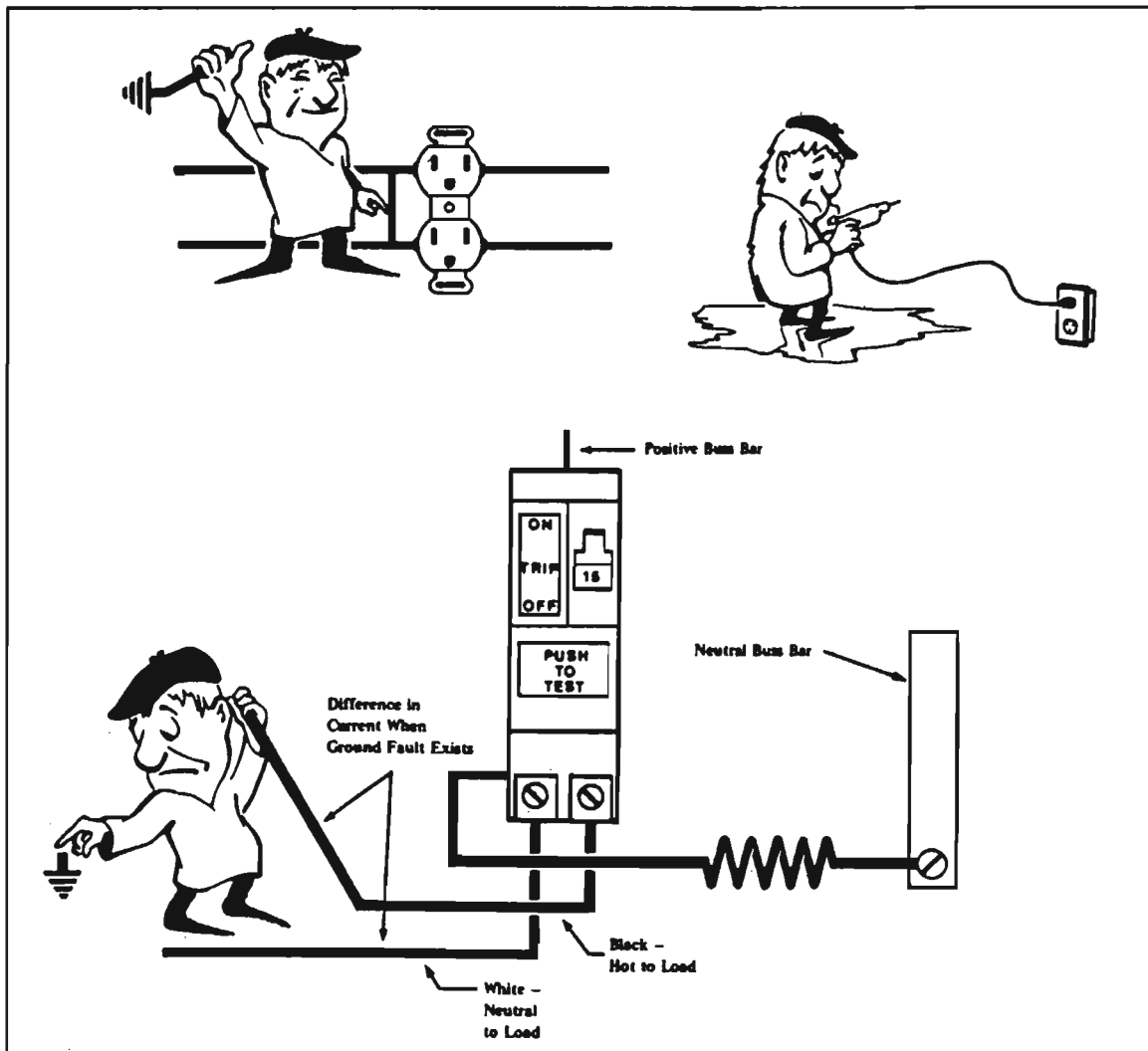
34'SB PUSHER

ITEM	PART NUMBER	DESCRIPTION	QTY	UN
TOLERANCES				
±				
NEXT ASS'Y				
DRAWING BY <i>Airstream</i>				
APPROVED BY				
PRODUCT LINE SEE NOTE				
TITLE 30 AMP. BREAKER PANEL				
SCALE NONE	DATE 03/03/94	DRAWING NUMBER 952489	REV. B	

## GROUND FAULT CIRCUIT INTERRUPTER (GFCI)

Many states require trailers which are sold in their state, and which have exterior 110 volt receptacles, to have a ground fault circuit interrupter.

Trailers manufactured for sale in these states have type THQL 15 amp G FCI breakers installed on the general circuit, since the exterior breaker is on this circuit. The breaker replaced the standard TQL-15 amp breaker.



When properly installed, the GFCI circuit breaker provides reliable overload and short circuit protection PLUS protection from Ground Faults that might result from contact with a "HOT" load wire and ground.

**IMPORTANT NOTE:** The GFCI circuit breaker will NOT reduce shock hazard if contact is made between a "HOT" load wire and a neutral wire or 2 "HOT" load wires.

Each GFCI circuit breaker is calibrated to trip with a ground current of 5 milliamperes or more. Since most persons can feel as little as 2 milliamperes, a distinct shock may be felt if the need for protection exists. However, the shock should be of such short duration that the effects will be reduced to less than the normally dangerous level. However, persons with acute heart problems or other conditions that can make a person particularly susceptible to electric shock, may still be seriously injured.



While the GFCI circuit breaker affords a high degree of protection, there is no substitute for the knowledge that electricity can be dangerous when carelessly handled or used without reasonable caution.

**WARNING:** The GFCI circuit breaker provides protection only to the circuit to which it is connected. It does NOT provide protection to any other circuit.

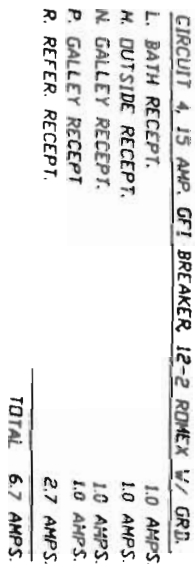
**OCCUPANT:**

Make this test each month and record the date on the chart.

1. With handle B in "ON" position, press PUSH TO TEST button A.
2. Handle B should move to TRIP position, indicating that GFCI breaker has opened the circuit.
3. To restore power move handle B to "OFF" and the to "ON".

**Important:** If handle B does not move to TRIP position when test button is pressed, the GFCI breaker protection is not complete. If this happens, replace GFCI breaker.

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1999												
2000												
2001												



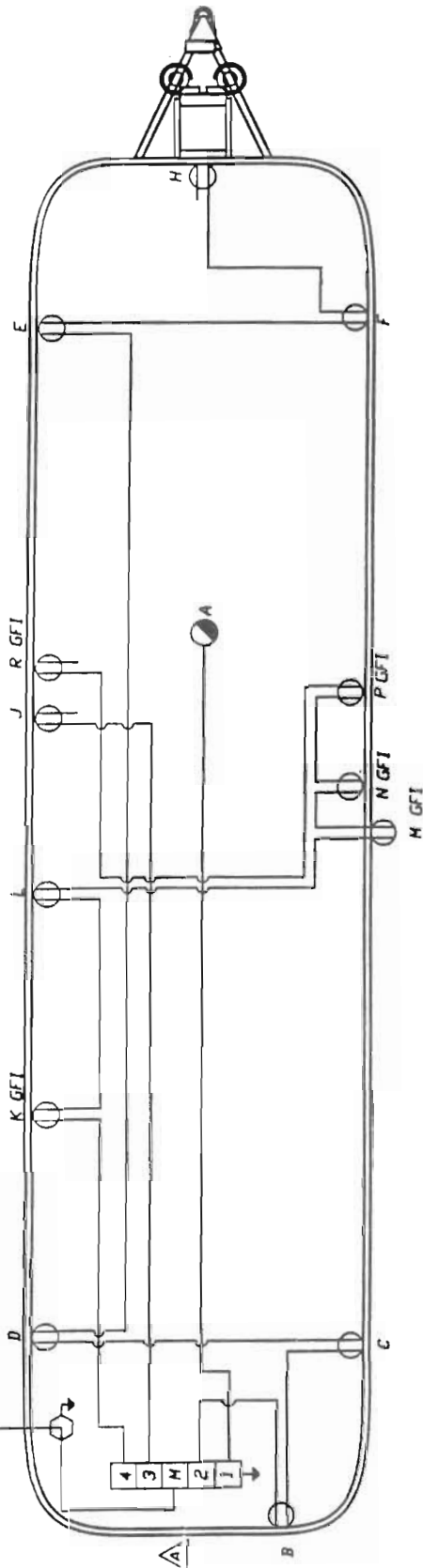
1.0 AMPS	
1.0 AMPS	
1.0 AMPS	
1.0 AMPS	
2.7 AMPS	
TOTAL	6.7 AMPS.

ITEM	PART NUMBER	DESCRIPTION	QTY	UOM
TOLERANCES				
±	DRAWN BY R.L.A.			
NEXT ASSY		APPROVED BY		
TITLE		PRODUCT LINE		
120 Volt Lay-out		25' S.B. A/S TRL.		
SCALE	DATE	DRAWING NUMBER		
1=32	03/08/94	952404		
		B	REV.	A

952450

LET	DATE	E.C.N.	REVISION RECORD	BY
	3/94	4458	PRODUCTION RELEASE	RA
A	2/95		CHG. BREAKER ALIGNMENT	TC

Q 30 A. POWER CORD  
23' OF USABLE LENGTH



CIRCUIT 1. 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.	
A. AIR CONDITIONER	16.0 AMPS.
CIRCUIT 2. 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.	
B. BEDROOM RECEPT (TWIN BEDS ONLY)	1.0 AMPS.
C. CURBSIDE BEDROOM RECEPT	1.0 AMPS.
D. ROADSIDE BEDROOM RECEPT	1.0 AMPS.
E. ROADSIDE LIVING AREA RECEPT	1.0 AMPS.
F. CURBSIDE LIVING AREA RECEPT	1.0 AMPS.
H. CONVERTER RECEPT	8.0 AMPS.
TOTAL	13.0 AMPS.

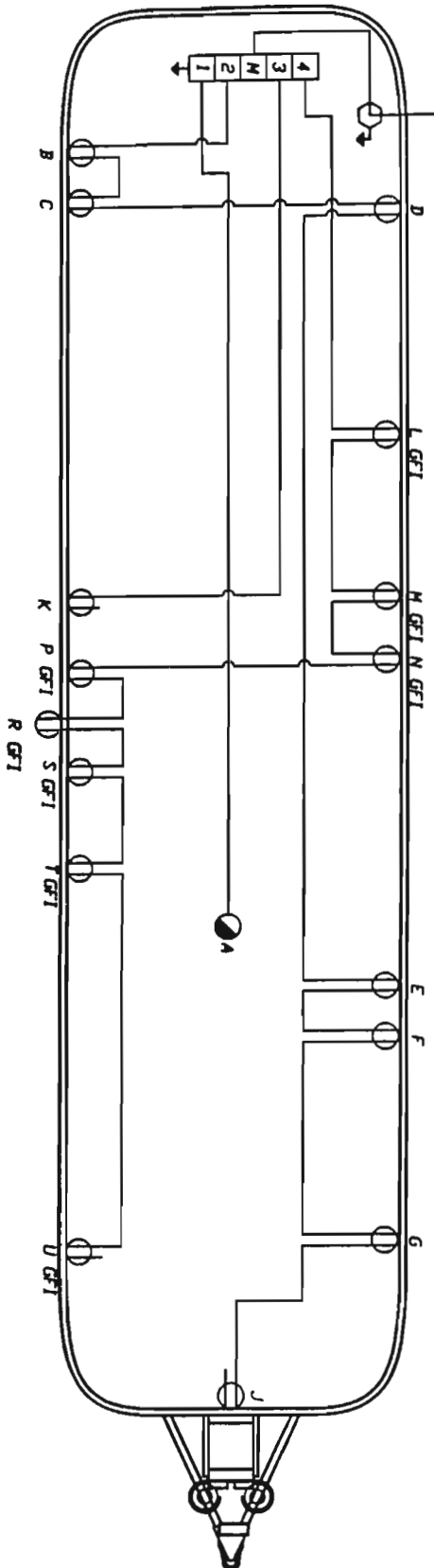
CIRCUIT 4. 15 AMP. GFI BREAKER, 12-2 ROMEX W/GRD.	
K. BATH RECEPT	1.0 AMPS.
L. REFER RECEPT	2.7 AMPS.
M. OUTSIDE RECEPT	1.0 AMPS.
N. GALLEY RECEPT	1.0 AMPS.
P. GALLEY RECEPT	1.0 AMPS.
R. R.S. CREDENZA RECEPT.	1.0 AMPS.
TOTAL	7.7 AMPS.

CIRCUIT 3. 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.	
J. MICROWAVE RECEPT	12.0 AMPS.

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±		Airstream	DRAWN BY T.C.	
NEXT ASSY			APPROVED BY	
TITLE		PRODUCT LINE	28' S.B. A/S TRL.	
120 Volt Lay-out				
SCALE 1=32	DATE 03/08/94	DRAWING NUMBER 952450	REV. B	A

952416

30 A. POWER CORD  
23' OF USABLE LENGTH



LET	DATE	E.C.N.	REVISION RECORD	BY
A	3/94	4458	PRODUCTION RELEASE	RA
A	3/95		CHG. BREAKER ALIGNMENT	TC

CIRCUIT 1 20 AMP. HACR BREAKER, 12-2 RDMEX V/GRD.

A. AIR CONDITIONER 16.0 AMPS.

CIRCUIT 2 20 AMP. HACR BREAKER, 12-2 RDMEX V/ GRD.

B. CURBSIDE BEDROOM RECEPT 1.0 AMPS.

C. CURBSIDE BEDROOM RECEPT 1.0 AMPS.

D. ROADSIDE BEDROOM RECEPT 1.0 AMPS.

E. CREDEENZA OVERHEAD RECEPT 1.0 AMPS.

F. ROADSIDE LIVING AREA RECEPT 1.0 AMPS.

J. CONVERTER RECEPT 8.0 AMPS.

TOTAL 14.0 AMPS.

CIRCUIT 4 15 AMP. GFI BREAKER, 12-2 RDMEX V/ GRD.

L. BATH RECEPT 1.0 AMPS.

M. REFER RECEPT 2.7 AMPS.

N. DINETTE RECEPT 1.0 AMPS.

P. GALLEY RECEPT 1.0 AMPS.

R. OUTSIDE RECEPT 1.0 AMPS.

S. GALLEY RECEPT 1.0 AMPS.

T. GALLEY RECEPT 1.0 AMPS.

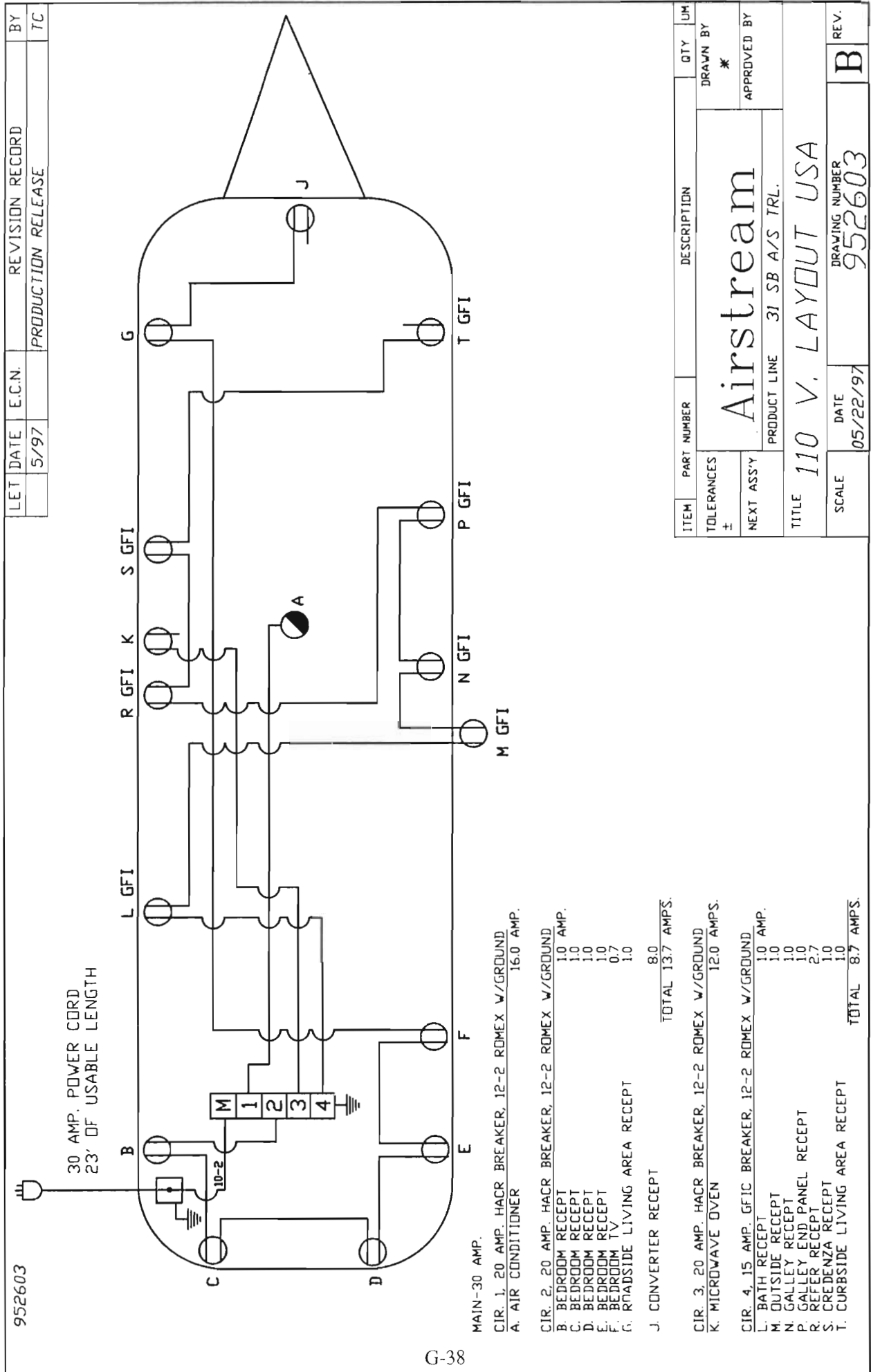
U. CURBSIDE LIVING AREA RECEPT 1.0 AMPS.

TOTAL 9.7 AMPS.

CIRCUIT 3 20 AMP. HACR BREAKER, 12-2 RDMEX V/GRD.

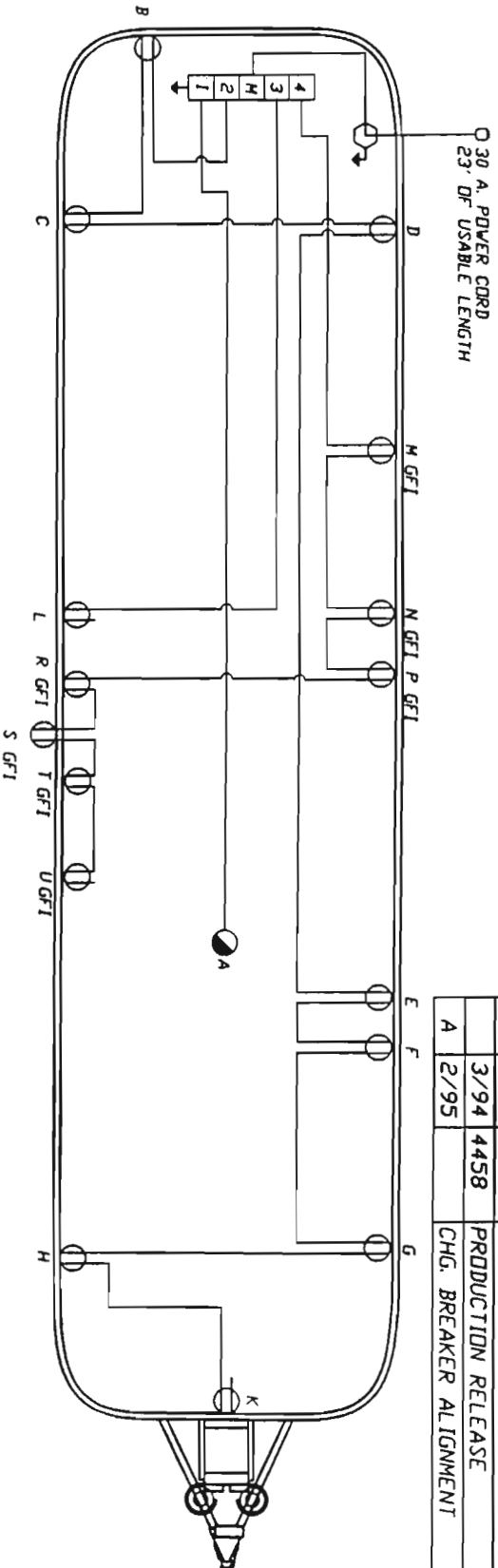
K. MICROWAVE RECEPT 12.0 AMPS.

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±	Airstream			
NEXT ASS'Y				
TITLE	120 Volt Lay-out			
SCALE	DATE	DRAWING NUMBER	REV.	
1=32	03/08/94	952416	B	A



952408

LET	DATE	E.C.N.	REVISION RECORD	BY
	3/94	4458	PRODUCTION RELEASE	RA
A	2/95		CHG. BREAKER ALIGNMENT	TC



CIRCUIT 1, 20 AMP. HACR BREAKER, 12-2 ROMEX V/GRD.  
A. AIR CONDITIONER 16.0 AMPS.

CIRCUIT 2, 20 AMP. HACR BREAKER, 12-2 ROMEX V/GRD.  
B. BEDROOM RECEPT (TWIN BEDS ONLY) 10 AMPS.  
C. CURBSIDE BEDROOM RECEPT 10 AMPS.  
D. ROADSIDE BEDROOM RECEPT 10 AMPS.  
E. CREDEENZA RECEPT 10 AMPS.  
F. CREDEENZA OVERHEAD RECEPT 10 AMPS.  
G. ROADSIDE LIVING AREA RECEPT 10 AMPS.  
H. CURBSIDE LIVING AREA RECEPT 10 AMPS.

K. CONVERTER RECEPT

TOTAL 8.0 AMPS.  
TOTAL 15.0 AMPS.

CIRCUIT 3, 20 AMP. HACR BREAKER, 12-2 ROMEX V/GRD.  
L. MICROWAVE RECEPT 12.0 AMPS.

CIRCUIT 4, 15 AMP. GFI BREAKER, 12-2 ROMEX V/GRD.  
M. BATH RECEPT 1.0 AMPS.  
N. REFER RECEPT 2.7 AMPS.  
P. DINETTE RECEPT 1.0 AMPS.  
R. GALLEY RECEPT 1.0 AMPS.  
S. OUTSIDE RECEPT 1.0 AMPS.  
T. GALLEY RECEPT 1.0 AMPS.  
U. GALLEY RECEPT 1.0 AMPS.

TOTAL 8.7 AMPS.

ITEM	PART NUMBER	DESCRIPTION	QTY	UN
TOLERANCES ±				
NEXT ASS'Y				
PRODUCT LINE 34' S.B. A/S TRL.				
TITLE 120 Volt Lay-out				
SCALE 1=32	DATE 03/08/94	DRAWING NUMBER 952408	REV. B A	

Airstream

DRAWN BY T.C.  
APPROVED BY

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## APPLIANCES

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### 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 trailers 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.

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 trailer 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.



## **RANGE**

Manufacturer: Maytag Customer Service  
Maytag Customer Assistance  
P.O. Box 2370  
Cleveland, TN 37320-2370  
Phone: 1-800-544-5513

People using gas ranges in their home will find little difference in the operation of the range in the motorhome. 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

Sharp Electronics Corporation  
10 Sharp Plaza  
Paramus, New Jersey 07652  
201-5112-0055

Litton  
2530 North 2nd Street  
Minneapolis, Minnesota 55411  
605-336-5377

Quasar  
Division of Matsushia Elec. Corp  
1325 Pratt Blvd.  
Elk Grove 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.

## REFRIGERATOR

Manufacturer: Dometic Sales Corporation  
2320 Industrial Parkway  
P.O. Box 490  
Elkhart, Indiana 46514  
Phone: 219-295-5228

Review all Dometic Literature supplied in your Owner's Packet or stored in the refrigerator prior to operating.

In an absorption refrigerant 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 out-of-level when the vehicle is not moving, liquid ammonia will accumulate in portions 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.

## 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 be 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 120 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 trailer 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) Open dome approx. 3" or more (ceiling fan has a built in safety switch that will not allow motor to operate unless dome is partially open).
- 2) Turn 3- speed knob to desired performance lever (3-Low, 2-Medium, 1-High, O-Off).
- 3) Open a window or door for airflow.
- 4) Source of airflow is determined by the window(s) or door(s) opened. For best results, close all roof vents and open 1 (one) window the greatest distance from your Fan-Tastic Vent ceiling fan.

**CAUTION: Never place Lindeen™ or a like cover over ceiling fan. Greatly restricted airflow & increased sound levels will occur.**

### **WHEN EQUIPPED WITH REVERSE SWITCH**

- 1) Turn fan motor off by:
  - a) Setting 3-speed switch to "O" - OFF.
  - b) Closing Dome.
  - c) Selecting center position on IN/OUT rocker switch.
- 2) Wait for fan blade to stop.
- 3) Select IN position, brings air from the roof area into your coach (pressurizes inside).
- 4) Or select OUT position, brings air in through any or all openings in coach and exhausts through the roof.
- 5) Turn fan motor On.

### **WHEN EQUIPPED WITH THERMOSTAT:**

- 1) Follow "Operating Instructions: 1 thru 4.
- 2) Select desired temperature or comfort level on thermostat. Fan motor will now start & stop automatically as interior temperature of coach exceeds or drops below selected level.

**NOTE: Fan motor will not start if temperature selected is warmer than interior temperature of coach.**

### **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.



	#1	#1010-81	MAIN BASE
(4.5)	#1	#1144-09	EPDM BULB SEAL
	#1B	#1024-81	ALIGNMENT SPACER
	#1C	#1025-05	#8 x 5/8 F.H.PH. t/s ZINC
	#1D	#1122-05	JAMB SWITCH #9251 - C.H.
	#1E	#2011-05	6" LIFT ARM -w/RIV. & BUSHING
(2)	#1F	#1012-05	#10 x 1/2" P.H. PH. p/s - ZINC
(2)	#1G	#2053-09	P-267T-1A-RD CARLING LIMIT
	#1H	#2052-00	LYZF - DC - 12 - OMRON
	#1I	#9002-09	G4W -11123 - 95 - TVB - DC - 12 OMRON
	#2	#1015-00	"H" MOTOR MOUNT
	#2A	#4017-09	MOTOR - PM3491x - BLK - 1600 RPM
	#2B	#1017-03	MOTOR-#31153-1400RPM-CSA
	#2C	#1019-81	HEYCO - CCL 1/8 - #3302 CLAMP
(8)	#2D	#1016-05	#8 x 1/2 P.H. PH. t/s -ZINC
	#2E	#1121-05	B3R - 56 - RING CONNECTOR
	#3	#1020-19	DOME-SMOKE
	#3A	#1023-05	DOME SLIDE - GALVANIZED
(6)	#3B	#1016-05	#8 x 1/2 P.H. PH. t/s - ZINC
	#3C	#1021-05	#1260A - HINGE - ALUMINUM
(4)	#3D	#1022-05	5/32 x 1/4 x 5/16 "o" RIVET ZINC
	#3E	#2018-81	DOME WEDGE - WHITE NYLON
	#4	#1138-00	FAN BLADE - 12" CLR.
	#4A		FAN BLADE SET SCREW
	#5	#1030-	SCREEN ASSEMBLY COLORED
	#5A	#1031-05	3-SPEED SWITCH #3K754
	#5B	#1033-09	DIAL LABEL - BLK. POLY
	#5C	#1032-05	NUT - 7/16 x 28 UNEF - ZINC
	#5D	#1034-09	KNOB - SOFT TOUCH #PT-6-P
	#5E	#9001-09	DPDT - HOT STAMPED w/CROSS
	#5F	#1140-09	KNOB - 1741Z - BLACK
	#5G	#2143-05	EXTENSION 1 1/8 - ZINC
	#5H	#1142-05	8-32 x1 3/4 P.H. PH. m/s ZINC
(2)	#5I	#1038-	#88 x 3/8" F.H. PH t/s - COLOR
(2)	#5J	#1039-	#8 x 2 3/4" F.H. PH. w/s - COLOR
	#5K	#6050-05	DOME LIFT MOTOR - #200.0262A
	#5L	#6035-	MOTOR CAP - COLORED
(2)	#5M	#1039-	#8 x 2 3/4 F.H. PH. w/s - COLOR
	#5N	#9006-05	BT THERMO #3301B
	#5P	#9015-90	SST THERMO #00-00127-000
	#5Q	#9009-09	LABEL - COOLER - BLACK
	#5R	#1032-05	NUT - 7/16 x 28 UNEF - ZINC
	#5S	#1018-81	BT CLAMP - CCL 1/4 - #3304
	#5T	#9017-00	FUSE #312010 - 10A - FLTW*
	#5T	#9018-09	FUSE HOLDER #345602 - FLTW*
	#5U		LABEL OVERRIDE/NORMAL
	#5V		B-2-1 8 GOLD - SPST-SGMA
(2)	#5W	#9008-05	6 - 32 x 1/4 F.H. PH. m/s - ZINC
	#5X		SPST w/ON/OFF LABEL
	#5e-	#9005-39	RBT. SHW w/OFF WALL THERMO
	#6	#1035-	SCREEN RING w/ALUM. WIRE - COLOR
(8)	#6A	#1038-	8B x 3/8" F.H. PH. t/s -COLORED
	#7	#1040-	INTERIOR GARNISH - 3" MAX. - COLOR
	#7A	#9024-81	INTERIOR GARNISH - 4" MAX. - COLOR
	#7B	#9019-00	OAK STYLE - FINISHED
	#7C	#9020-00	OAK RETURN PANEL - ANY SIZE
	#7D	#9010-	#6 x 3/4 F.H. PH. t/s - COLORED





## SPECIFICATIONS

**LENGTHS** - Note: see complete weight information under "Loading"

<b>Length</b>	<b>Model</b>	<b>Actual Length</b>
25'	Excella	25' 9"
28'	Excella	29'
30'	Excella	31'
31'	Excella	31'
34'	Limited	34' 10"

## DIMENSIONS

Exterior Width	8' - 5.5"
Exterior Height	With A/C 9' - 7.5"
Interior Height	With A/C 6' - 3.5"

## CAPACITIES

<b>Size/Model</b>	<b>Fresh Water Tank</b>	<b>Main Holding Tank</b>	<b>Auxiliary Holding Tank</b>
25' Side Bath	50 gal.	30 gal.	37 gal.
28' Side Bath	50 gal.	35 gal.	35 gal.
31' Side Bath	50 gal.	35 gal.	35 gal.
34' Side Bath	50 gal.	35 gal.	37 gal.

**Note:** All weights were made on prototype vehicles. Your production trailer may vary slightly.

## **Alignment**

Toe In 0 - 1/8" (All Models)

Camber 0 - 1 1/2 degree positive (All Models)

## **Battery**

12 Volt Deep cycle (All Models)

## **Tire Inflation (PSI) Cold**

ST225/75R15LRC	50 psi
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## **Hitch Ball height**

The proper height will vary according to the weight you carry and the tires you use. However, checking the height on your trailer is relatively easy:

1. With trailer on fairly level ground measure from ground to bottom of frame, front and rear.
2. Adjust front jack until measurements are equal.
3. Now measure from ground to the inside top of ball coupler. This figure is the hitch height. The hitch ball is then usually set 1/2" to 1" higher, according to the spring weight of your tow vehicle, to allow for it to settle when the trailer is hitched up.

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