OWNER'S MANUAL

LAND YACHT

CUTTER

By Airstream

INTRODUCTION

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

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

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

The operation and care of component parts 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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AIRSTREAM, INC.

LIMITED WARRANTY

AIRSTREAM LAND YACHT MOTORHOME

Warranty Coverage

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

Warranty Period

The Warranty is for 12,000 miles (20,000 Kilometers) or one year, whichever occurs first, beginning when the vehicle is delivered to the first retail purchaser or first placed into demonstrator service. This warranty must have been started prior to the accumulation of 4,000 miles in order to be valid.

Items Covered

Any part of the motorhome or any component equipment installed by the factory is covered by the warranty except the following items which are not covered:

* Automotive Chassis
* Battery
* Fuses and Light Bulbs
* Video Recorder or Player
* TV and Radio
* Backing Monitor
* Microwave Oven
* Tires
* AC Power Plant

The above items will be handled by their respective service points and according to their written policy. This limited warranty does not include failure caused by accident, abuse, normal wear, overload or any cause not attributable to a defect in original material or workmanship of the motorhome or component equipment as installed by the factory.

Limitation of Implied Warranties

All warranties of merchantability and fitness for a particular purpose, whether written or oral, express or implied, shall extend only for a period of one year from the date of original purchase, or 12,000 miles, whichever comes first. There are no other warranties which extend beyond those described on the face hereof and expressly excludes conditions resulting from normal wear, accident, abuse, exposure or overload. **Some states do not allow limitation on how long an implied warranty lasts, so the limitation may not apply to you.**

Airstream' s Responsibility

The Airstream Limited Warranty applies for a period of one year from the date of original purchase, or 12,000 miles, whichever occurs first, and the applicable date of all warranties is that indicated on the Owner's Identification Card. Defects in items covered under this warranty will be corrected without cost upon the return at the owner's expense of the motorhome or defective part to an authorized Airstream dealer.

Care and Maintenance

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

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

Installations not Covered

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

If Repairs are Needed

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

1. Take your motorhome to your selling dealer or other Authorized Airstream dealer.

2. If the dealer is incapable of making the repair, request that he contact the Service Administration Department at Airstream, Inc., for technical assistance.

3. If repairs are still not made, the customer should contact Airstream, Inc., 419 W. Pike Street, Jackson Center, Ohio 45334, Attention: Owner Relations Department, and furnish the following information.

    * The complete serial number of the motorhome
    * Mileage
    * Date of original purchase
    * Selling dealer
    * Nature of service problem and steps or service which have been performed. (The owner may be directed to another dealer at the owner's expense.)

4. If, after taking the above steps, repairs are still not complete, the Airstream owner may request the motorhome be allowed to be brought to the Factory Service Center at the owner's expense.

Dealer Representation Excluded

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

Consequential and Incidental Damages

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

Warranty Transfer

This 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.

Thor Industries
Airstream, Inc.
419 West Pike
Jackson Center, Ohio 45334
(513) 596-6111

WARRANTY EXPLANATION

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

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

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

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

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

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

The Airstream Limited Warranty Excludes:

Normal Wear:

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

Accident

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

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

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

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

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

SERVICE

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

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

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

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

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

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

Airstream Factory
Service Center
419 W. Pike Street
Jackson Center, Ohio 45334
Phone: 513-596-6111

You Should Also be Aware of the Following:

Airstream is not responsible for any consequential or incidental damages incurred as a result of any defect. Consequential damages include, but are not limited to, travel expenses, gasoline, oil, lodging, meals, telephone tolls, loss of work and loss of use of the motorhome.

In the event of a defect, the owner must take all reasonable corrective action to lessen the damages which might result from such defect. Airstream will not be responsible for damages which could have been avoided.

Airstream's responsibility is defined solely by the Airstream Limited Warranty and Airstream is not responsible for or bound by representations or warranties made by any of its dealers.

Your Airstream Limited Warranty is transferable to subsequent owners of the motorhome, but only for the duration of the warranty period. Warranty transfer application forms are available from your dealer or the Airstream factory.

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

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

EVERY 1000 MILES OR 30 DAYS

Escape Window	Check operation of latches and upper hinge
Battery (lead-acid)	Check water level
Smoke Alarm	Test and replace battery as required
Tires	Check tire pressure (80 psi)
G Fl Circuit Breaker	Test and record

EVERY 5000 MILES OR 90 DAYS

Exterior Door locks	Lubricate with dry graphite
Exterior Hinges	Lubricate with light household oil
LPG Regulator	Check bottom vent for obstructions
Main Door Striker Pocket	Coat with paraffin
Wheel Lug Bolts	Ford 140 ft. lb. Chevrolet 177 ft. lb. Oshkosh 450 ft. lb.
Range Exhaust Hood	Clean fan blades and wash filter
Roof Vent Elevator Screws	Lubricate with light household oil
Main Door Step	Lubricate moving parts and check

EVERY 10,000 MILES OR 6 MONTHS

Exterior	Clean and wax
Hitch	Check bolts and welds (90 ft. lb.)
Satellite Antenna	See maintenance directions in electrical section

EVERY YEAR OR 12,000 MILES

Battery	Clean, neutralize and coat terminals with petroleum jelly
LP Tank	Have purged by LP supplier
Seams	Check seal on exterior seams, windows, lights, and vents. Reseal with Kool Seal or equivalent as needed.

MAINTENANCE RECORDS

Date	Dealer	Service Performed

DRIVING

WIDE BODY LIMITATIONS

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

LOADING

On the following chart up to seven different weights are listed on each model Cutter motorhome. Following is an explanation of those weights.

NCC - Net Carrying Capacity
UVW - Unloaded vehicle weight (fuel is full)
GAWR/FR - Gross axle weight rating - front
GAWR/RE - Gross axle weight rating - rear
GAWR/Tag - Gross axle weight rating - tag
GVWR - Gross vehicle weight rating - maximum allowable weight of motorhome
GCWR - Gross combined weight rating - maximum allowable weight of motorhome combined with towed cargo

Model	NCC	UVW	GAWR/FR	GAWR/RE	GAWR/TAG	GVWR	GCWR
Ford-30 ft.	2,500	14,440	6,000	11,000	-	17,000	25,000
Chev-30 ft.	3,160	13,340	5,500	11,000	-	16,500	20,000
Oshkosh-32 ft.	3,830	16,010	6,340	13,500	-	19,840	24,000
Ford-34 ft.	4,060	15,940	6,000	11,000	4,000	20,000	25,000
Chev-34 ft.	3,990	15,510	5,500	11,000	4,000	19,500	20,000
Ford-*W/S-O- 34 ft.	3,420	16,580	6,000	11,000	4,000	20,000	25,000
Ford-36 ft.	3,350	16,650	6,000	11,000	4,000	20,000	25,000
Chev-36 ft.	**3,250	**16,250	5,500	11,000	4,000	19,500	20,000

*W/S-O - with slide out room
**Estimated Weight - actual weight not available at time of publication

***WARNING - Do not exceed the hitch capacity of 400 load and 4000 lb. tow.**

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

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

For reference, water weighs 8.33 pounds per gallon and fuel weighs about 7 pounds to a gallon.

SAFETY CHECK LIST

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

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

EXTERIOR CHECK LIST (BEFORE ENTERING VEHICLE)

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

INTERIOR CHECK LIST (BEFORE DRIVING OFF)

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

SAFETY SEAT BELTS

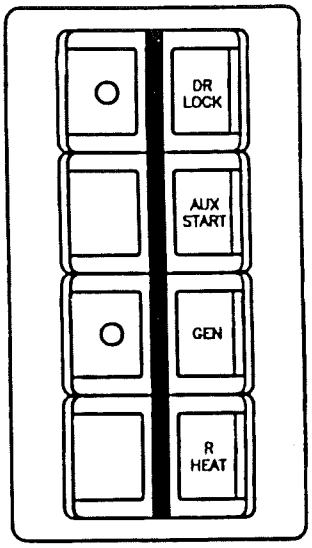
In the forward driver's area of the motorhome, safety seat belts are provided for the use of the driver and the right front passenger. Safety belts are available for other seats. It is strongly recommended that all occupants remain seated with their safety belts firmly attached while the motorhome is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

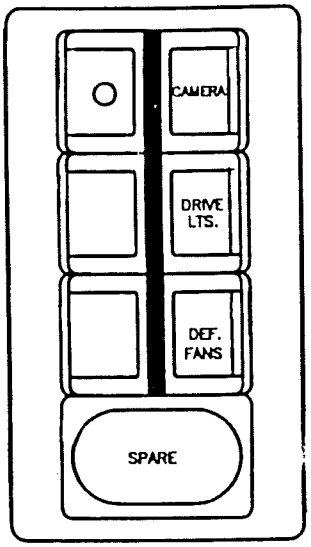
WARNING: **Children must be secured in a Federally Approved Child Restraint Device. Failure to use proper restraints can result in severe or fatal injuries in case of accidents.**

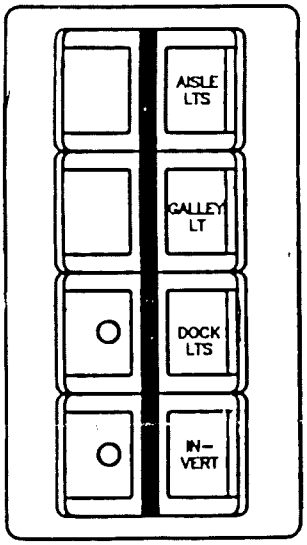
Child restraint devices are designed to be secured with lap or lap/shoulder belts. All instructions supplied by the restraint manufacturer must be followed. Statistics have shown children are safer when properly restrained in a rear seating position than in a front seating position.

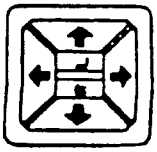
Often the children traveling in motorhomes are grandchildren. There are times when our love for grandchildren makes us hesitate to properly supervise their actions. Don't hesitate when it comes to their safety. Make sure they are properly restrained.

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









AIRSTREAM DASH CONTROLS

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

Arm Rest Switches:

- **Door Lock** - The main door can be locked or unlocked from the drivers seat. Remember to hide an extra door key on the exterior in case of unexpected battery failure.
- **Auxiliary Battery** - The auxiliary start switch is intended to be used if the engine battery becomes too discharged to turn the engine over. To operate, hold the switch in the start position, then use the ignition switch in a normal fashion. Operating the auxiliary start switch closes the points on a large solenoid, tying all three vehicle batteries together for increased starting power.
- **Generator Switch** - The remote generator switch on the dash allows the driver to start or stop the generator without leaving the driver's seat. It should be noted a built-in time delay allows the generator to reach full operating speed before 120 volt current is provided to the coach.
- **Rear Heat** - This switch is two speed and controls the fan on the rear engine heater by the door. The heat source is from the radiator so heat will only be available when driving.
- **Rear Camera** - The rear view monitoring camera has two positions. One will show the rear bumper and operating the switch tilts the camera to view further back.
- **Driving Lights** - To operate the driving lights the regular head lights must be turned on first.
- **Defrost Fans** - In cool, damp weather these fans really help to clear the large windshields. This switch turns them on and off and each fan has it's own switch to operate the oscillating feature.
- **Aisle Lights** - The low aisle lights will allow passengers to converse without using overhead lights that could be bothersome to a driver at night.
- **Galley Light Switch** - Some drivers like to be able to turn lights on and off for their passengers. If this doesn't interest you, simply leave the switch on and the galley light will function with its own switch.
- **Docking Lights RS (roadside)** - The docking lights illuminate the area at the side of the motorhome and are intended for use when parking in a campground at night.
- **Inverter** - This switch controls a relatively small inverter wired into the front television. Use it **only** when you want to watch the front television and you're **not** plugged into 110 volt power.
- **Mirror** - Move center switch to R or L. The four perimeter switches will then move the right or left mirror in the direction indicated.

POWER SEAT CONTROLS

The cab seats will adjust three ways for maximum comfort. Three levers control the operation. The levers in the end of the arm rest control the recline and swiveling of the seat. A lever under the front left side of the seat allows forward and backward adjustment.

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

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

TRAILER TOWING AND DRIVING TIPS

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

CAUTION:

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

To assist in attaining good handling of the vehicle/trailer combination it is important that the trailer tongue load be maintained at approximately 10% of the loaded trailer weight, but not to exceed 400 lbs. Tongue loads can be adjusted by proper distribution of the load in the trailer, and can be checked by weighing separately the loaded trailer and then the tongue.

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

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

CAUTION:

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

NOTES

CHASSIS

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

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

Automotive Chassis

Engine
Transmission
Brakes
Steering Assembly
Front Spindle, Bearings
Alternator
Turn Signals
Drive Axle and Hubs
Shocks
Automotive Fuse Panels
Parking Brake
Fuel Tank
Cruise Control
Wheels

Airstream

Auxiliary Heater
Dash Air Conditioner/Heater
Windshield Wipers
Air Horn
Isolator
Tag Axle

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

TAG AXLE

The tag axle suspension is made by Henschen Industrial, a Division of Airstream, and has been used on Airstream trailers for more than twenty-five years with proven dependability. Since this suspension is within the axle tube, the only downward weight is from the spindle arm out. With the lack of force to push the tire down past its "relaxed" state the inside tag axle tire may be lifted clear of the pavement when traversing sharp corners at high speeds.

Normally there will not be any reason to adjust the brake controller for the tag axle. Occasionally though, after the surface of the brakes are worn in and mate perfectly, it may be necessary to reduce the braking slightly. The controller is mounted under the dash on the left side of the steering column. On the bottom of the controller is a knurled cap. Under the cap is an adjusting screw with arrows indicating the correct direction to turn for more or less brakes.

The "spring" of the Dura-Torque axle comes from four rubber rods extending into the axle tube on each end.

CAUTION: **Do not allow heat to be applied to the axle tube. The rubber rods are not visible and will be damaged by excessive heat.**

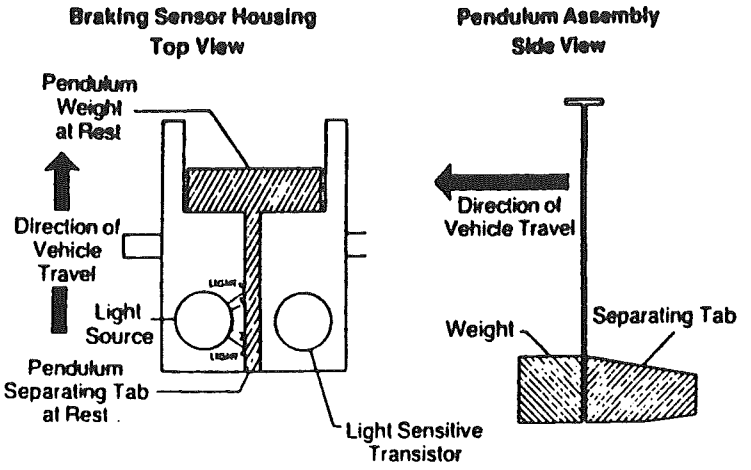
Alignment of this unique axle is accomplished by bending (cold) the axle tube. If realignment should ever be required your dealer can give you the location of the closest alignment shop with the correct equipment.

Lubrication

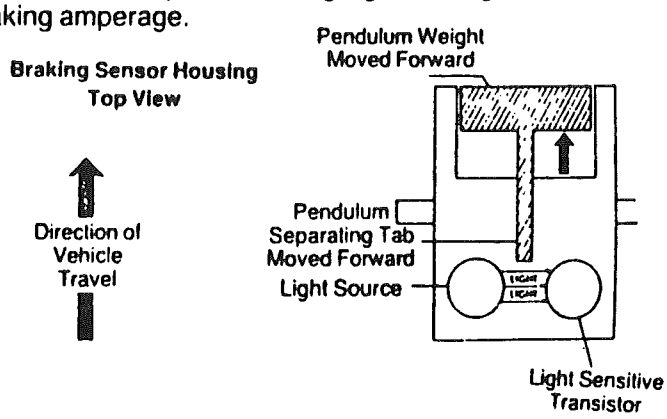
The wheel bearings on the tag axle are repacked much like the wheel bearings on the front of a passenger car. They should be repacked every 12,000 miles or 12 months, whichever comes first. Since motorhomes often sit for weeks at a time without use, wheel bearing care is more critical than a car seeing almost daily use. This is definitely not the place to try to save a dollar in reduced maintenance. Wheel bearings are easily repacked by any reputable mechanic and the cost is minimal. Picture yourself in beautiful mountain scenery . . . . with smoke pouring out of a wheel bearing that's fused to the axle spindle.

TAG AXLE BRAKES

The electric brakes on the tag axle of the motorhomes may seem exotic to the automotive industry, but to the RV industry they are a standard. So standard that almost all RV travel trailer dealers keep a stock of parts and have mechanics totally familiar with the system.



Pendulum in rest position. No light gets through and no change in braking amperage.



Pendulum in deceleration position. Light reaches sensor and braking amperage is increased in direct proportion.

On our motorhomes we've selected a pendulum type brake controller for its simplicity and dependability. It has been preset at the factory and further adjustments should not be necessary. Occasionally, as the mating surfaces wear into each other, it might be a good idea to reduce braking a little. The controller is mounted on the left side of the steering column support bracket. The adjusting screw is on the bottom of the controller.

Four wires are on the brake control. The black picks up power from a circuit breaker accessible through the front access door. The white is ground, blue goes to the brake magnets and the red is wired to the stop light switch

The brakes on the tag axle of your Airstream motorhome are electric. They are the same style brake as used on our Airstream trailers for the last 30 years. Currently we are using Dexter brakes in the 12" x 2" size.

Brake Operation (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.

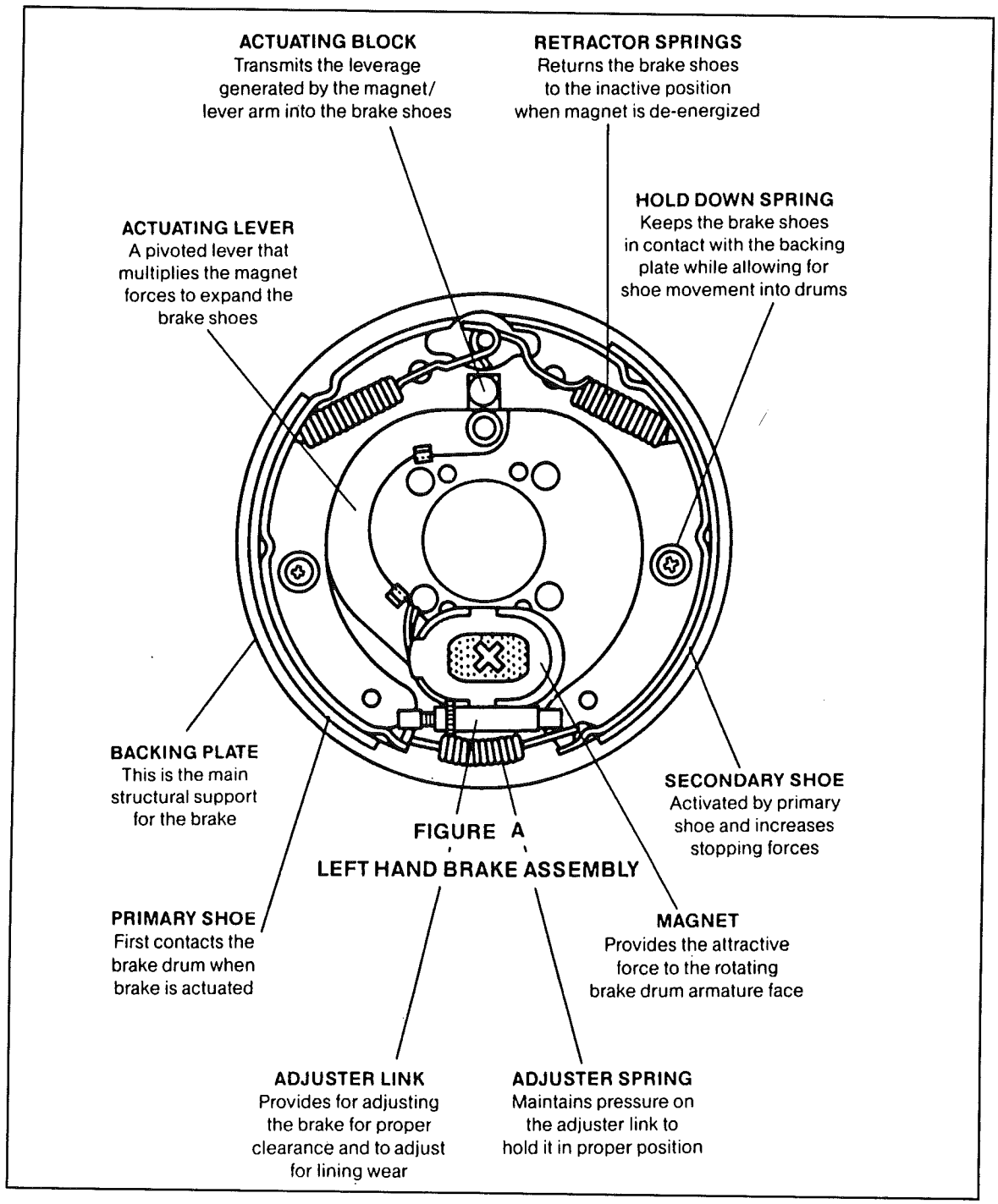


FIGURE A
LEFT HAND BRAKE ASSEMBLY

GENERAL MAINTENANCE

BRAKE ADJUSTMENT

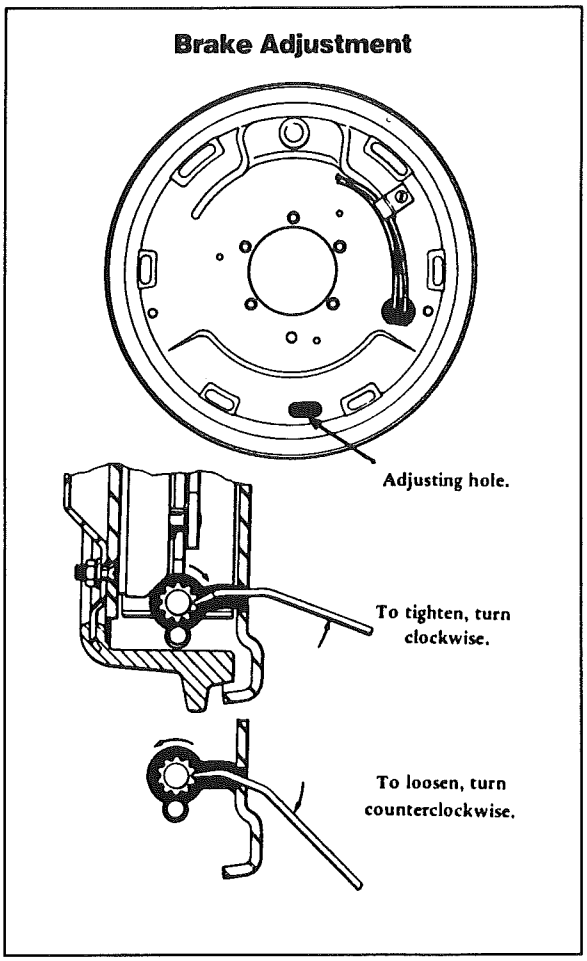
1. Pull dual drive wheels up on ramp approximately 8" high until tag axle tires clear ground.

2. Set hand brake and check tires securely.

3. Remove rubber plug and tighten the brake adjustment screw while spinning the wheel until heavy drag is felt.

4. Back off adjustment until tire spins freely.

5. Repeat on other side.



OPERATION

1. When the brake lights are operated the electronics of the controller are activated and a small amount of current is supplied to the brake magnets.

2. As brake pedal pressure increases a pendulum in the controller starts to swing forward, and a directly proportional increase of power is supplied to the brake magnets.

3. When the brake pedal is released, and current to the brake lights senses the release, current flow to the brake magnet is stopped.

BRAKE CLEANING, INSPECTION AND LUBRICATION

Your tag axle brakes must be inspected and serviced at yearly intervals or more often as use and performance requires. 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.

WARNING: 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.)

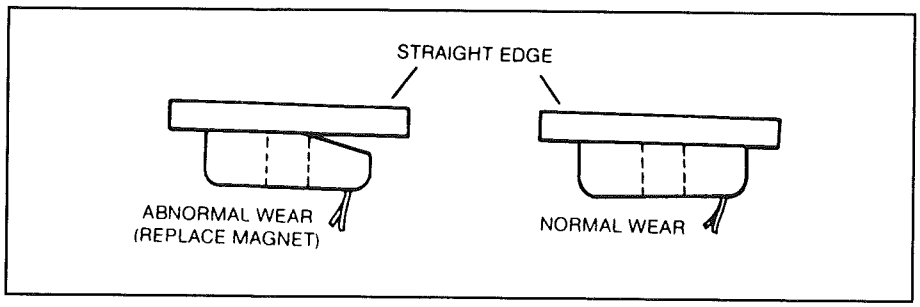
Brake Lubrication

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.

TROUBLE SHOOTING

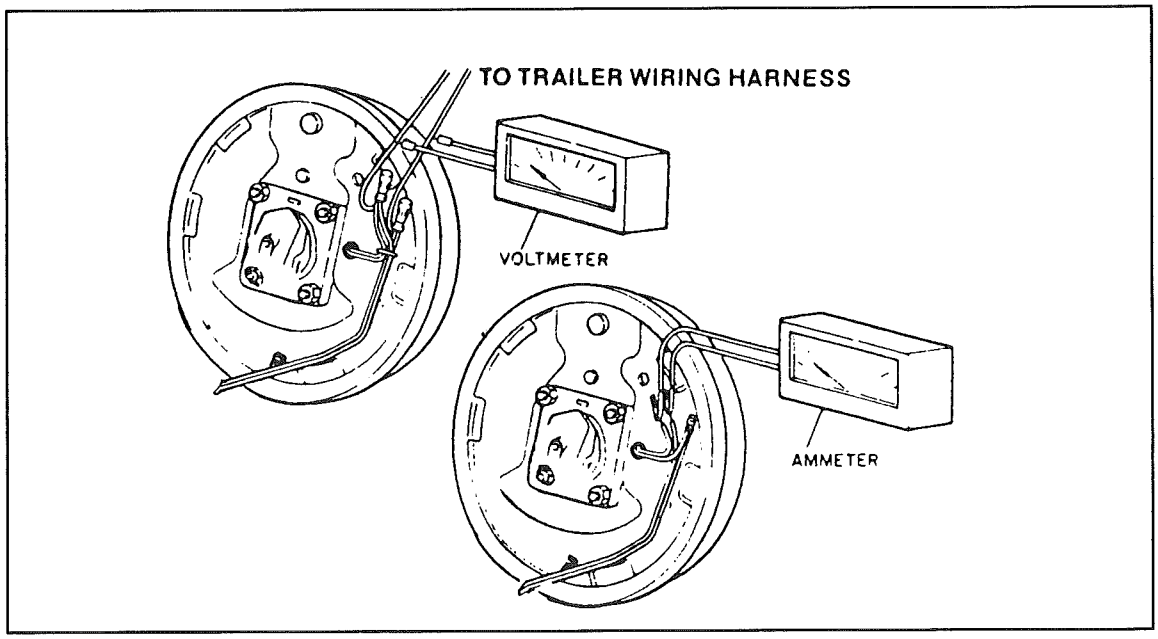
Most brake malfunctions that cannot be corrected by either brake adjustment or synchronization adjustments can generally be traced to electrical system failures. Mechanical causes are ordinarily obvious, i.e. bent or broken parts, worn out linings or magnets, seized lever arms or shoes, scored drums,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

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
12x2	3.0	6.0

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

TROUBLE SHOOTING GUIDE

SYMPTOM	CAUSES	REMEDIES
No Brakes	Open Circuits	Find & Correct
	Severe Underadjustment	Adjust Brakes
	Faulty controller	Test & Correct
	Short Circuits	Find & Correct
Weak Brakes	Grease or oil on Magnets or Linings	Clean or Replace
	Corroded Connections	Clean & Correct Cause of Corrosion
	Worn Linings or Magnets	Replace
	Scored or Grooved	Machine or Replace Brake Drums
	Improper Synchronization	Correct
	Underadjustment	Adjust Brakes
	Glazed Linings	Reburnish or Replace
	Overloaded Trailer	Correct
Locking Brakes	Underadjustment	Adjust
	Improper Synchronization	Correct
	Faulty controller	Test & Correct
	Loose, Bent, or Broken Brake Components	Replace Components
	Out of Round Brake Drums	Machine or Replace
	Insufficient Wheel Load	Adjust System Resistor and Synchronize
Intermittent Brakes	Faulty Controller	Test & Correct
	Broken Wires	Repair or Replace
	Loose Connections	Find & Repair
Brakes Pull To One Side	Incorrect Adjustment	Adjust
	Grease or Oil on Linings or Magnet	Clean or Replace
	Broken Wires	Find & Repair
	Bad Connections	Find & Repair
Harsh Brakes	Under Adjustment	Adjust
	Improper Synchronization	Correct
	Improper Controller	Change
	FAulty Controller	Test & Correct
Noisy Brakes	Under Adjustment	Adjust Brakes
	Lack of Lubrication	Lubricate
	Broken Brake Components	Replace Component
	Incorrect Brake Components	Correct
Surging Brakes	Grease or Oil on	Clean or Replace Linings or Magnet
	Our of Round or Cracked Brake Drums	Machine or Replace
	Faulty Controller	Test & Correct
Dragging Brakes	Overadjustment	Readjust
	Out of Round Brake Drums	Machine or Replace
	Incorrect Brake Components	Replace
	Loose, Bent, or Broken Brake Components	Replace
	FAulty Breakaway Switch	Repair or Replace
	Loose Wheel Bearing Adj.	Adjust
	Bent Spindle	Replace Axle

HUB REMOVAL

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

A. Pull dual drive wheels up on ramp approximately 8" high until t axle tires clear ground.

B. Set hand brake and chock tires securely.

C. Place index marks on wheel and drum so they can be mated back in the same position.

D. Remove wheel from drum.

E. Remove spindle cover, dust cap, cotter key, spindle nut a washer.

F. Remove outside bearing and brake drum.

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 rebore diameter is as follows:

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 AN D 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.

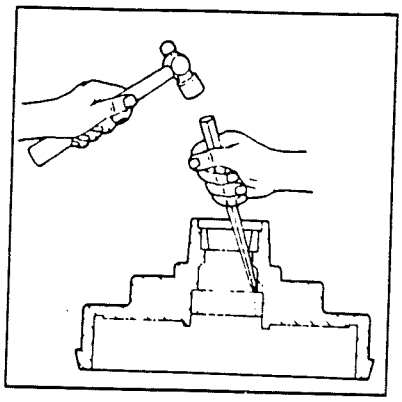
BEARING INSPECTION

Wash all grease and oil from the bearing cone using a suitable solvent. Dry the bearing with a clean. lint-free cloth and inspect each roller completely If any pitting, spalling, or corrosion is present then the bearing should be replaced. The bearing cup inside the hub should likewise be inspected.

IMPORTANT: BEARINGS MUST ALWAYS BE REPLACED IN SETS OF A CONE AND A CUP.

When replacing the bearing cup proceed as follows.

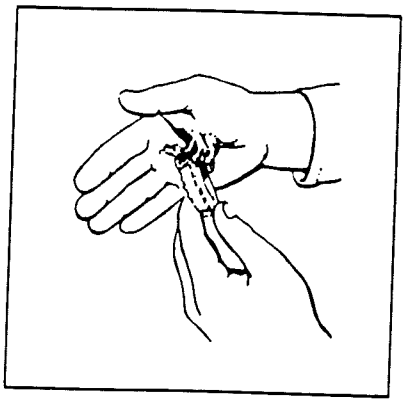
1. Place the hub on a flat work surface with the cup to be replaced on the bottom side.
2. Using a brass drift punch, carefully tap around the small diameter end of the cup to drive out.
3. After cleaning the hub bore area, replace the cup by tapping in with the brass drift punch. BE SURE THE CUP IS SEATED ALL THE WAY UP AGAINST THE RETAINING SHOULDER IN THE HUB.



WARNING: BE SURE TO WEAR SAFETY GLASSES WHEN REMOVING OR INSTALLING FORCE FITTED PARTS. FAILURE TO COMPLY MAY RESULT IN SERIOUS EYE INJURY

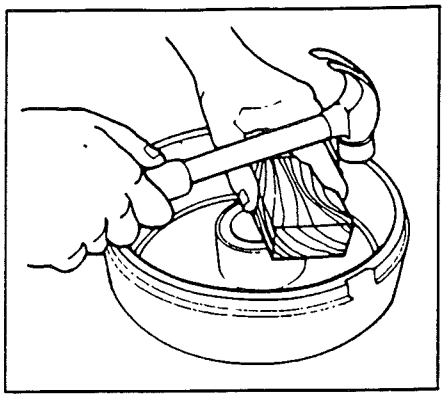
BEARING LUBRICATION

Along with bearing adjustment, proper lubrication is essential to the proper functioning and reliability of your trailer axle. Bearings should be lubricated every 12 months or 12,000 miles. The method to repack bearing cones is as follows:



1. Place a quantity of grease into the palm of your hand.
2. Press a section of the widest end of the bearing into the outer edge of the grease pile closest to the thumb forcing grease into the interior of the bearing.
3. Repeat this while rotating the bearing from roller to roller
4. Continue this process until you have the entire bearing completely filled with grease.
5. Before re-installing, apply a light coat of grease on the bearing cup.

SEAL INSPECTION AND REPLACEMENT



Whenever the hub is removed, inspect the seal to assure that it is not nicked or torn and is still capable of properly sealing the bearing cavity. If there is any question of condition, **replace the seal.** Use only the seals specified in the Seal Replacement Chart. To replace the seal follow the procedure on page 20.

1. Pry the seal out of the hub with a Screwdriver. Never drive the seal out with the inner bearing as you may damage the bearing.
2. Apply a PERMATEX™ sealant to the outside of the seal.
3. Tap the new seal into place using a clean wood block.

BEARING ADJUSTMENT AND HUB REPLACEMENT

If the hub has been removed or bearing adjustment is required, the following adjustment procedure must be followed:

1. After placing the hub, bearings, washers, and spindle nut back on the axle spindle in reverse order as detailed in the previous section on hub removal, rotate the hub assembly slowly while tightening the spindle nut to approximately 50 lb-ft. (12" wrench or pliers with full hand force)
2. Then loosen the spindle nut to remove the torque. **DO NOT ROTATE THE HUB.**
3. Finger tighten the spindle nut until just snug.
4. Back the spindle nut out slightly until the first castelation lines up with the cotter key hole and insert the cotter pin.
5. Bend over the cotter pin legs to secure the nut.
6. Nut should be free to move with only restraint being the cotter pin or locking tang.

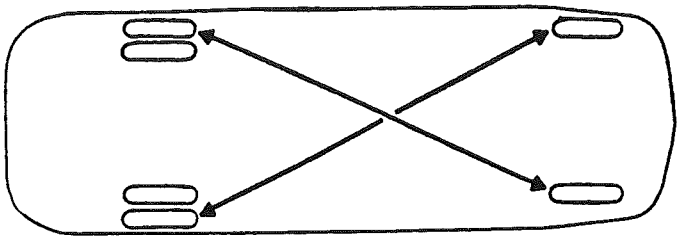
SPARE TIRE

On gasoline models the spare tire is cable supported under the rear of the coach. Access is from either side through the above floor storage in the rear. The receptacle to accept the crank wrench provided is located in the center of the storage compartment. Turning the nut counter clockwise unwinds the cable and lowers the tire for access.

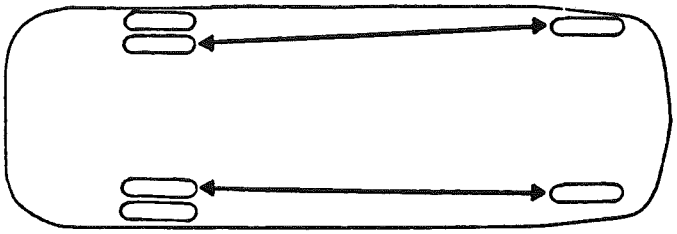
The diesel powered Cutters have the spare tire mounted towards the front. Access to the winch receptacle is in the curbside, front, below floor storage compartment.

TIRE ROTATIONS

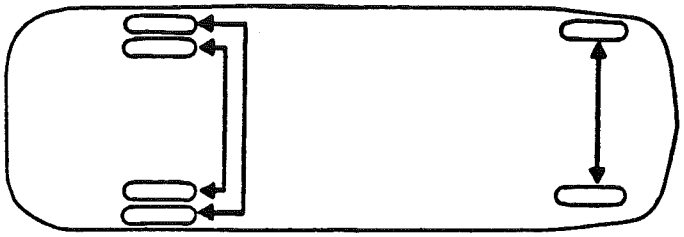
Rotation A
30 Foot Model
Steel Wheels



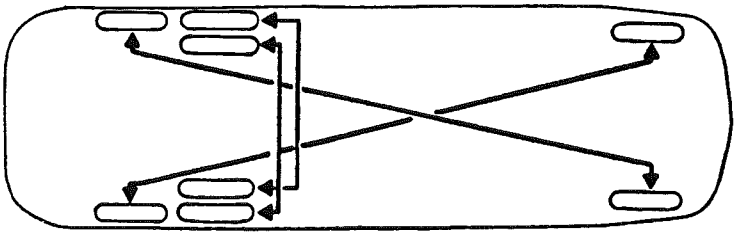
Rotation B
30 Foot Model
Steel Wheels



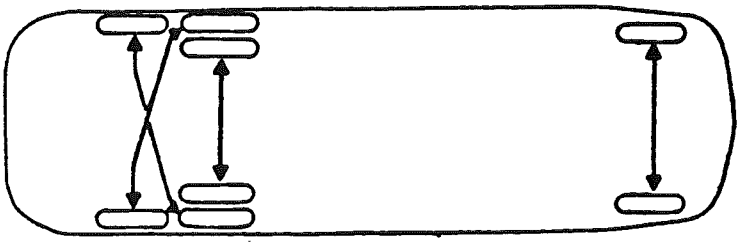
Rotation C
30 Foot Model
Aluminum Wheels



Rotation D
34 and 36 Foot Models
Steel Wheels



Rotation E
34 and 36 Foot Models
Aluminum Wheels



TIRE SUPPORT

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

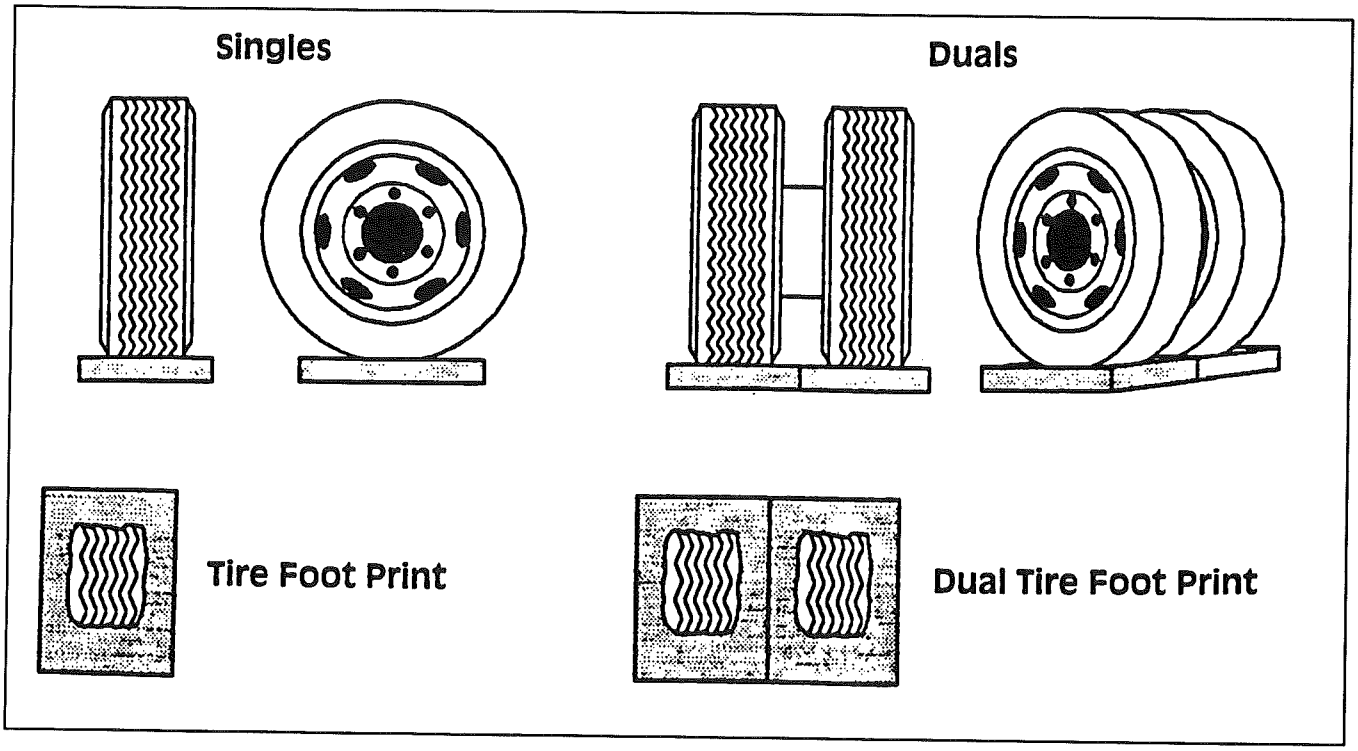
The following information is provided by the Michelin Technical Group.

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

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

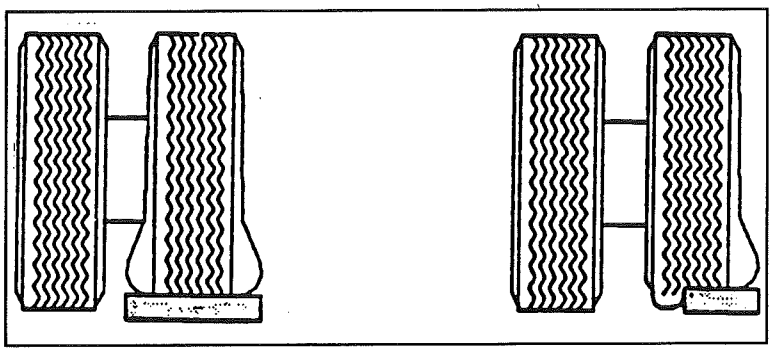
FIGURE 1

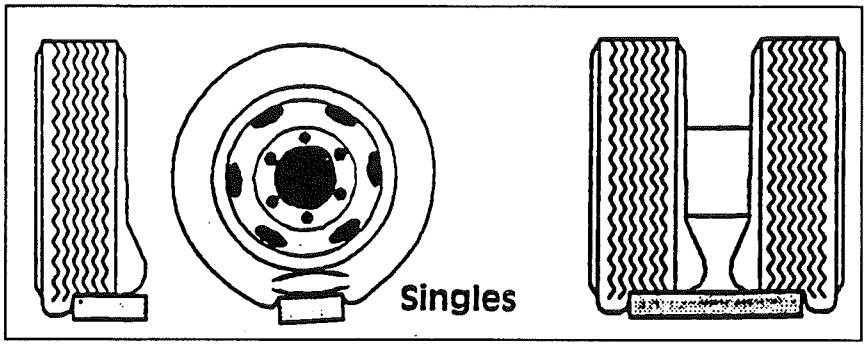
CORRECT



INCORRECT

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





Portion of the two tires supporting the full load.

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

DASH AIR CONDITIONER/HEATER

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

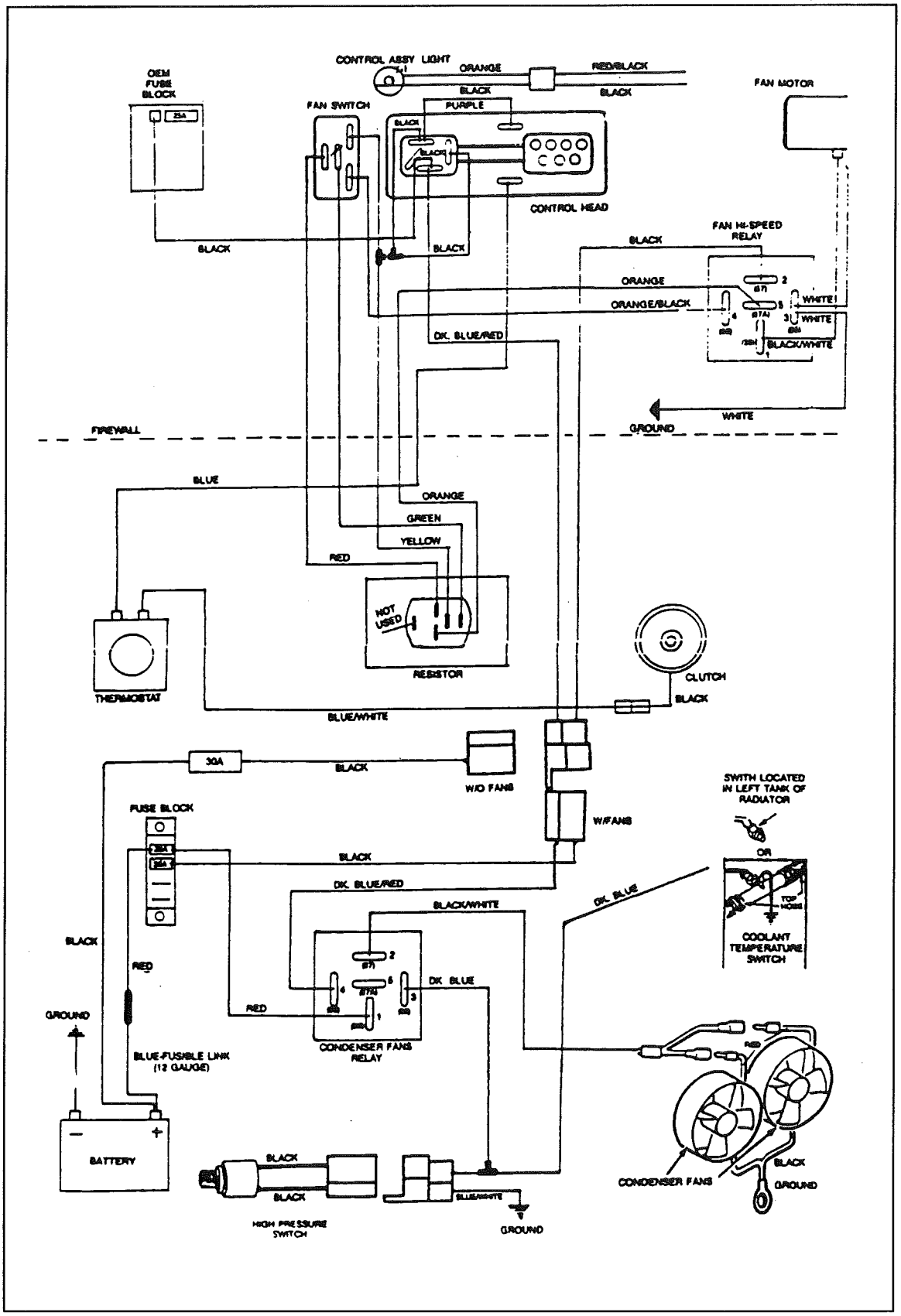
OPERATION

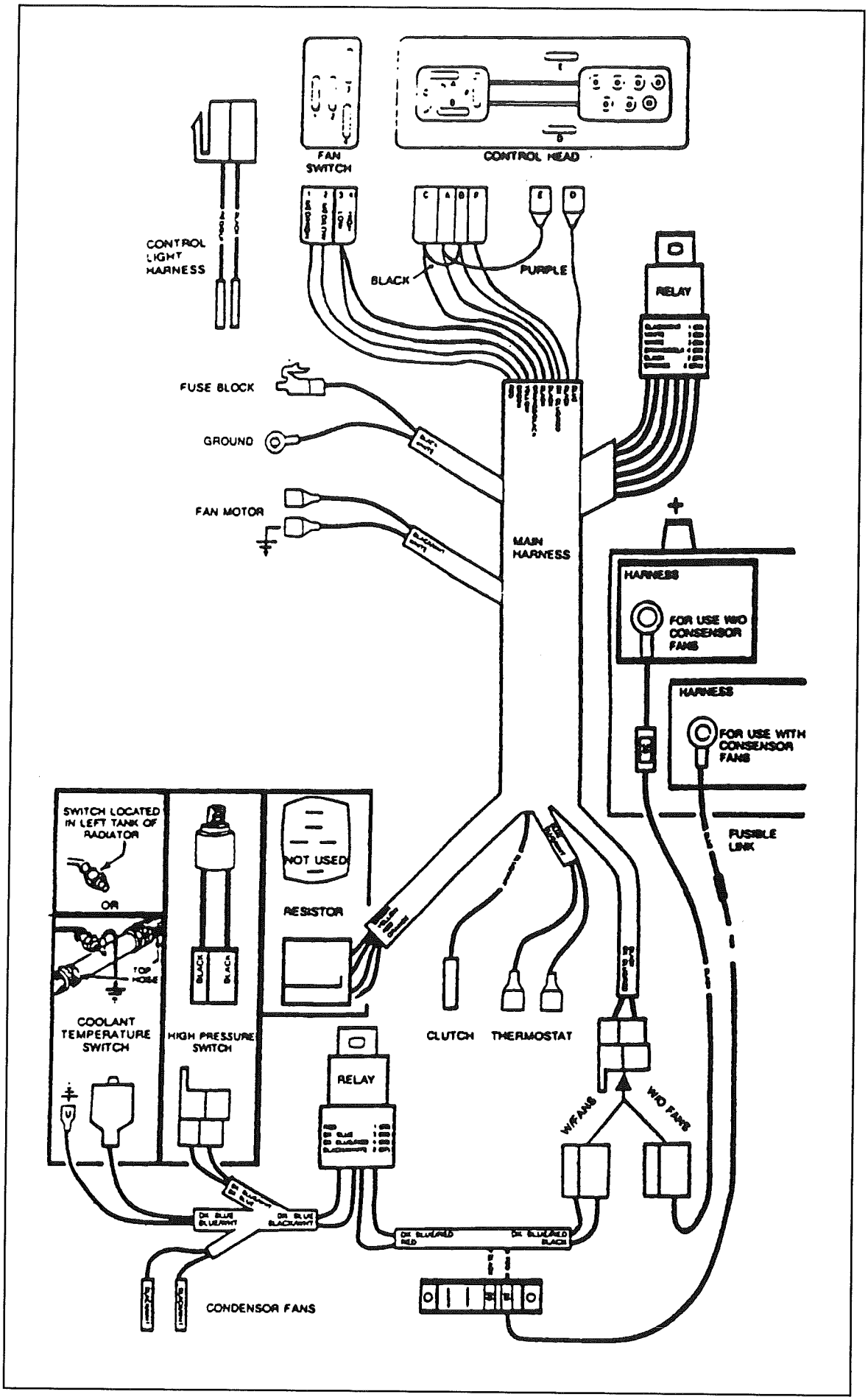
The operation of your dash air conditioner/heater is practically identical to those found in most automobiles. Three controls are involved. The fan switch varies the amount of air flow through the system. The "mode" controls between heat, air conditioning, defrost, floor and panel. So mode not only determines the part of the system you want to use but also the area where either the hot or cold air will be vented into the coach. The temperature control lever controls the amount of hot water being allowed to flow through the heater core.

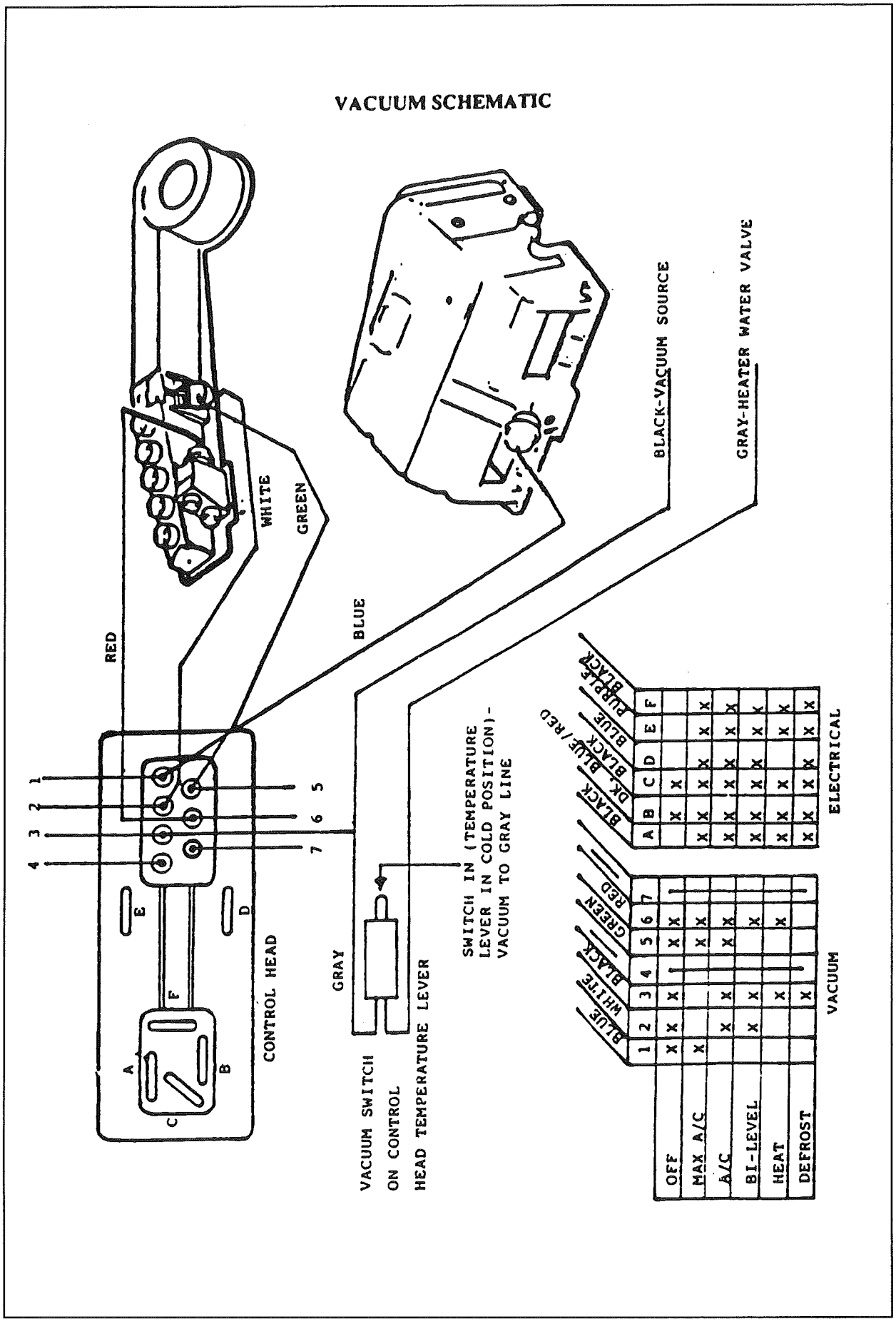
SERVICE

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

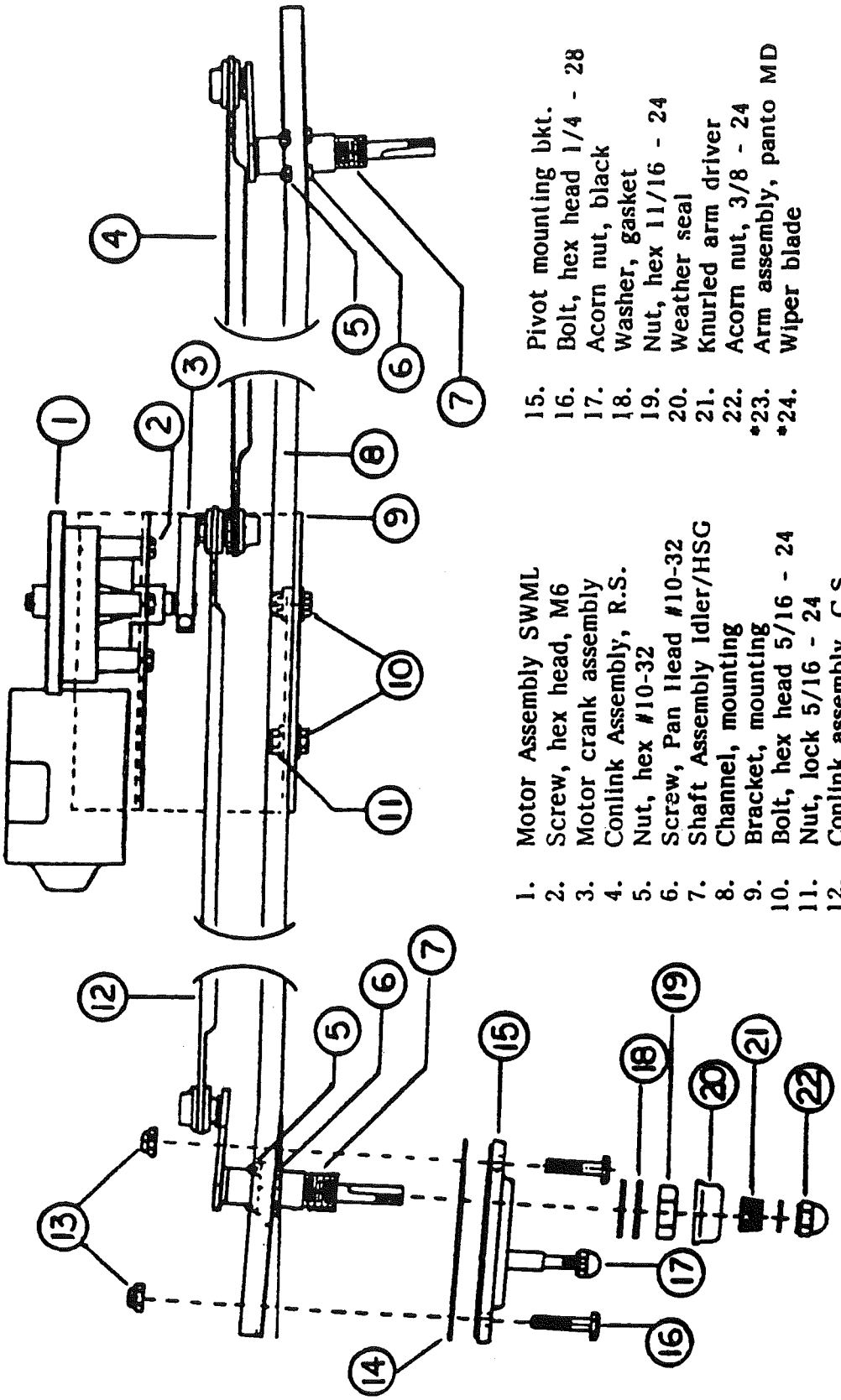
The following pages include wiring diagrams and vacuum line diagrams.


CONTROL ASSY LIGHT
ORANGE
RED/BLACK
BLACK
BLACK
OEM FUSE BLOCK
25A
FAN SWITCH
PURPLE
BLACK
BLACK
CONTROL HEAD
FAN MOTOR
FAN HI-SPEED RELAY
BLACK
BLACK
ORANGE
ORANGE/BLACK
WHITE
WHITE
BLACK/WHITE
DK. BLUE/RED
WHITE
GROUND
FIREWALL
BLUE
ORANGE
GREEN
YELLOW
RED
NOT USED
RESISTOR
THERMOSTAT
CLUTCH
BLACK
BLUE/WHITE
30A
BLACK
W/O FANS
W/FANS
SWITH LOCATED IN LEFT TANK OF RADIATOR
OR
FUSE BLOCK
BLACK
DK. BLUE/RED
BLACK/WHITE
DK. BLUE
COOLANT TEMPERATURE SWITCH
BLACK
RED
DK. BLUE
GROUND
RED
CONDENSER FANS RELAY
BLUE-FUSIBLE LINK (12 GAUGE)
BATTERY
BLACK
BLACK
HIGH PRESSURE SWITCH
BLUE/WHITE
GROUND
CONDENSER FANS
BLACK
GROUND


FAN SWITCH
CONTROL HEAD
CONTROL LIGHT HARNESS
BLACK
PURPLE
RELAY
FUSE BLOCK
GROUND
FAN MOTOR
MAIN HARNESS
HARNESS
FOR USE W/O CONSENSOR FANS
HARNESS
FOR USE WITH CONSENSOR FANS
FUSIBLE LINK
SWITCH LOCATED IN LEFT TANK OF RADIATOR
OR
NOT USED
RESISTOR
COOLANT TEMPERATURE SWITCH
HIGH PRESSURE SWITCH
CLUTCH
THERMOSTAT
RELAY
W/FANS
W/O FANS
CONDENSOR FANS


VACUUM SCHEMATIC
RED
WHITE
GREEN
BLUE
BLACK-VACUUM SOURCE
GRAY-HEATER WATER VALVE
CONTROL HEAD
GRAY
VACUUM SWITCH
ON CONTROL
HEAD TEMPERATURE LEVER
SWITCH IN (TEMPERATURE
LEVER IN COLD POSITION)-
VACUUM TO GRAY LINE
ELECTRICAL
VACUUM
OFF
MAX A/C
A/C
BI-LEVEL
HEAT
DEFROST
BLUE
WHITE
BLACK
GREEN
RED
BLACK
DK. BLUE/RED
BLUE
PURPLE
BLACK

WINDSHIELD WIPER ASSEMBLY



1. Motor Assembly SWML
2. Screw, hex head, M6
3. Motor crank assembly
4. Conlink Assembly, R.S.
5. Nut, hex #10-32
6. Screw, Pan Head #10-32
7. Shaft Assembly Idler/HSG
8. Channel, mounting
9. Bracket, mounting
10. Bolt, hex head 5/16 - 24
11. Nut, lock 5/16 - 24
12. Conlink assembly, C.S.
13. Nut, lock 1/4 - 28
14. Gasket
15. Pivot mounting bkt.
16. Bolt, hex head 1/4 - 28
17. Acorn nut, black
18. Washer, gasket
19. Nut, hex 11/16 - 24
20. Weather seal
21. Knurled arm driver
22. Acorn nut, 3/8 - 24
*23. Arm assembly, panto MD
*24. Wiper blade

* Not shown

ELECTRIC STEP (KWIKEE STEP 1 SERIES 28)

Manufacturer: Kwikee Products Company
Division of Ashton Corporation
P.O. Box 638
Drain, Oregon 97435
Phone: 503-836-2126

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

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

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

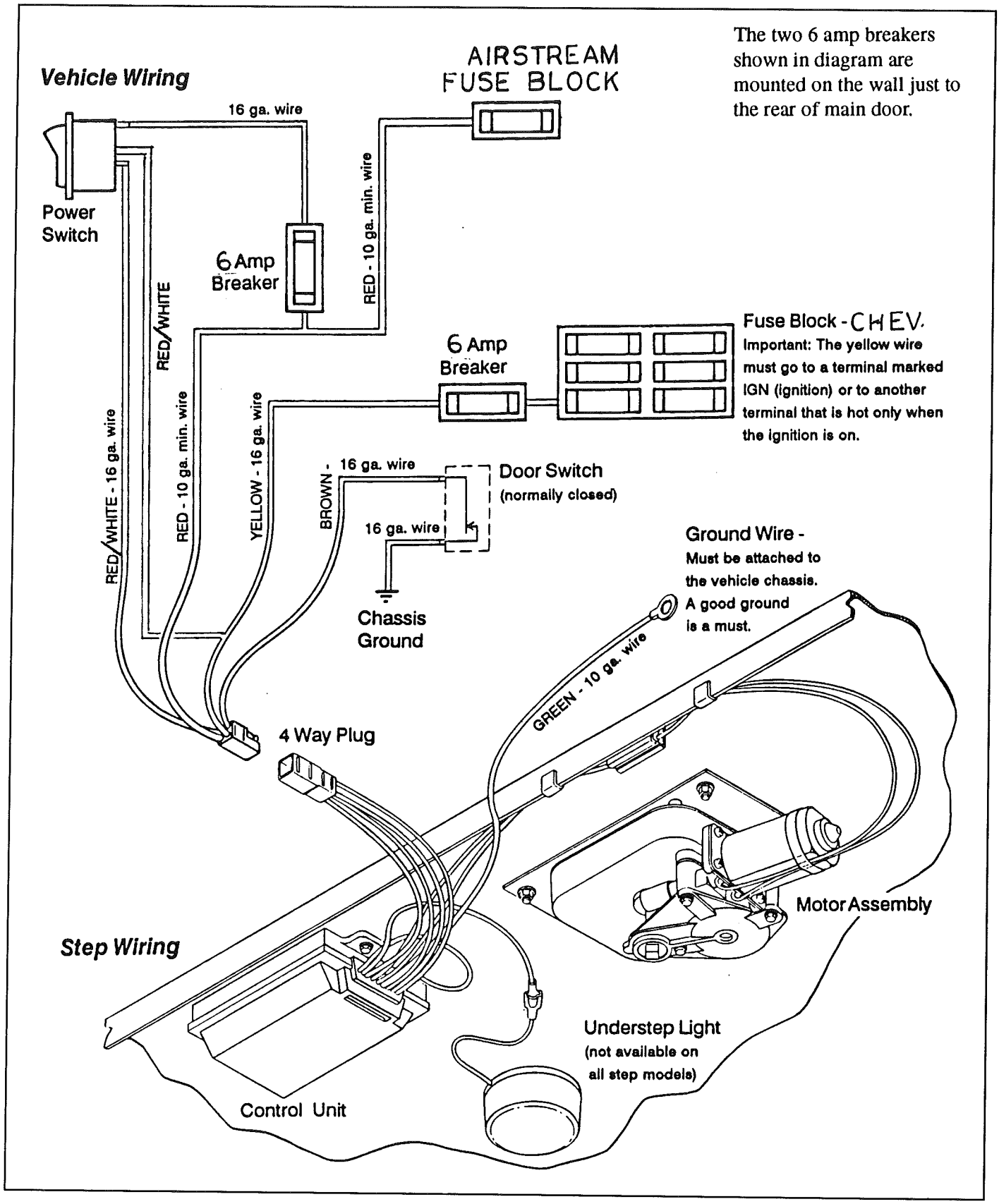
WARNING: If the wall switch is turned off, and the step is in the retracted position when the ignition is turned off, the step will not lower when the door is opened. Keep your passengers informed.

Power is supplied to the system by the red wire. The red/white wire turns the control on and off through the power switch. When the ignition is turned on, 12 volts DC power is supplied to the yellow wire. This engages a relay that passes power into the system, bypassing the "off" power switch, and retracts the step automatically when the door is closed.

The control unit is essentially a current sensor as well as a switching device. When the motor assembly moves the step tread to its extended position, or stops moving because of an obstruction, such as a curb, or the binding of a damaged or bent step frame, the motor draws a larger amount of current. The control unit "senses" the larger current draw and shuts off power to the motor.

WARNING: If the control unit shuts off power to the motor with the step in the partially extended position, do not step on the partially extended tread or damage to the step frame and/or motor assembly may result.

ELECTRICAL SCHEMATIC

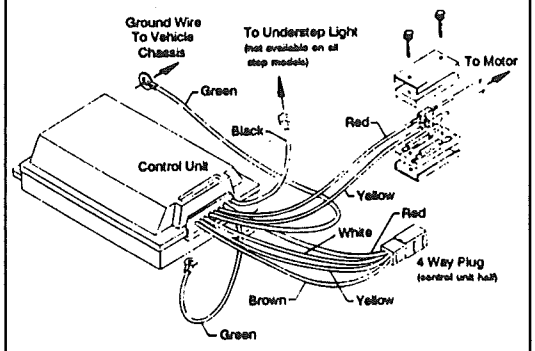


TEST PROCEDURE - VEHICLE WIRING:

Read the General Service Notes before starting any test procedure.

1. Unplug the four way plug between the control unit and the vehicle wiring. (See Figure 2)

Figure 2



2. TO CHECK THE MAIN POWER SOURCE: Connect a voltmeter between the RED wire from the vehicle half of the four way plug and the ring terminal on the end of the 10 ga. green ground wire from the control unit to the vehicle chassis (See Figure 3). The reading should be about 12 volts DC. If the voltage is low there may be a loose or corroded connection, or low battery charge. If the voltage reading is zero, check the 25 or 30 amp fuse/circuit breaker and all connections. Be sure there is a good ground connection between the step frame and the vehicle chassis. A good ground connection is a must. If the reading is approximately 12 volts DC proceed with the next test.

Figure 3

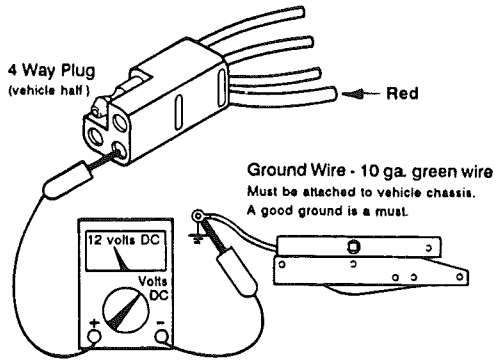
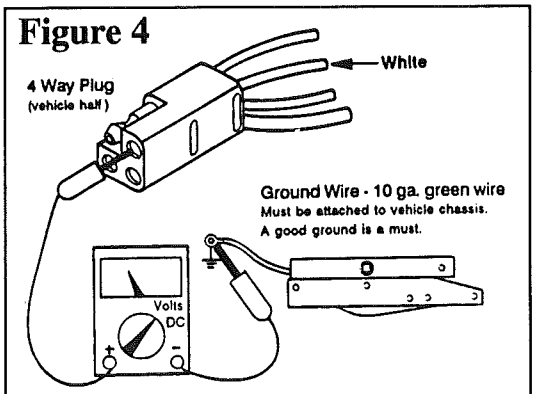


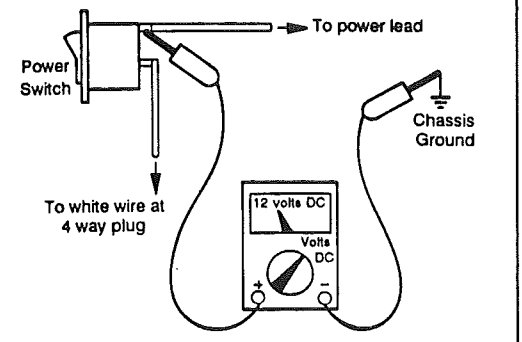
Figure 4



Voltmeter should read 12 volts DC with the power switch on and zero volts DC with the power switch off.

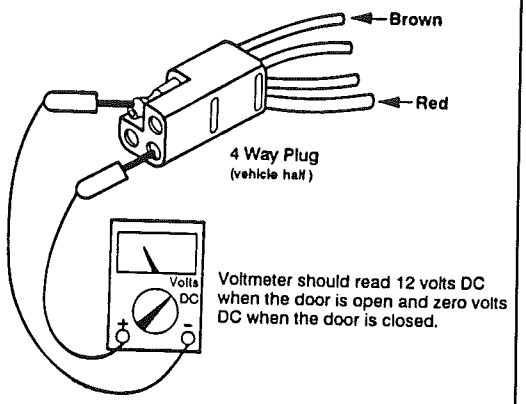
3. TO CHECK THE POWER SWITCH: Connect the voltmeter between the WHITE wire from the vehicle half of the four way plug and the ring terminal on the green ground wire (See Figure 4) The reading should be about 12 volts DC with the power switch on and zero when the switch is off. If the voltmeter reads zero with the power switch on, the first item to check is the inline fuse or circuit breaker in the wire between the power switch and the power lead (red wire). If the fuse/circuit breaker is all right, connect the voltmeter between the terminal on the power switch with the wire leading to the power wire (red wire) and ground (See Figure 5). If the reading is still zero check the wire leading to the power lead for a loose connection or cut wire. If the reading is about 12 volts DC, turn on the power switch and check the other power switch terminal in the same manner, by connecting the voltmeter between the terminal and ground. If the reading is zero, replace the power switch. If the reading was about 12 volts DC, there may be a loose connection or cut wire between the power switch and the vehicle half of the four way plug.

Figure 5



Note- One terminal of the power switch should always be "hot". The other terminal should only be hot when the switch is on.

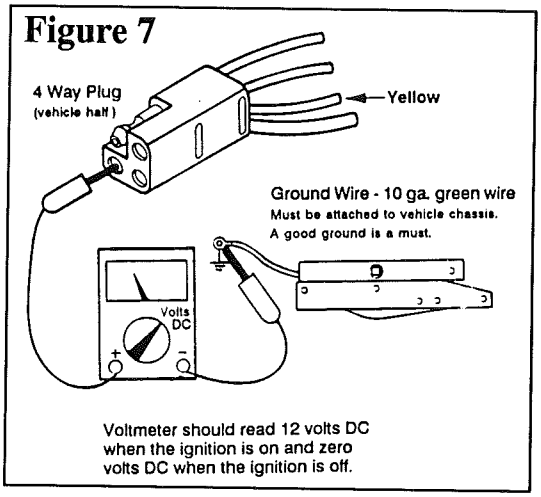
Figure 6



4. TO CHECK THE DOOR SWITCH: Connect the voltmeter between the RED wire from the vehicle half of the four way plug and the BROWN wire in the same plug (See Figure 6). The reading should be about 12 volts DC when the door is open and zero when the door is closed. If the reading is zero with the door open, check the ground connection from the door switch. This connection should be clean and tight. See Step #8 of the HOOKUP PROCEDURE. An improper ground can cause intermittent or erratic operation of the step. If the step will not retract after being extended or extends with the door closed, the BROWN wire to the door switch may be touching a grounded surface inside the wall behind the door jamb, or the door switch terminals may be touching a grounded surface or each other. If the step extends and retracts by itself while traveling, check the conditions previously described. With plunger door switches, be sure that the door switch plunger is depressed at least two thirds of its travel when the door is closed. If the switch is not depressed at least two thirds of its travel, it is possible for the switch to make intermittent contact as the vehicle frame shifts slightly while traveling along the roadway. With magnetic door switches, be sure the magnet is in place and proper clearance is maintained between the switch and magnet. If all the previous conditions check okay, the door switch may be faulty.

5. TO CHECK THE IGNITION SAFETY SYSTEM: Connect the voltmeter between the YELLOW wire from the vehicle half of the four way plug and the ring terminal on the green ground wire (See Figure 7). The reading should be about 12 volts DC when the ignition is on and zero when the ignition is off. If the reading is zero when the ignition is on, check the connection of the yellow wire at the vehicle's fuse panel. If connected at a fuse, check for a blown fuse. **NOTE** - *On some installations there may be an inline fuse or circuit breaker in the YELLOW wire that should be checked* If the reading was about 12 volts DC when the ignition was off, the YELLOW wire is connected to a constant live source. On control units #9513 and #9590, if the YELLOW wire is connected to a constant live source, the step will always activate with the door movement, even if the power switch and ignition are off.

Figure 7



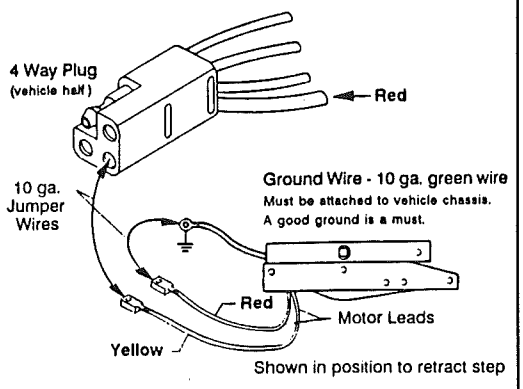
TEST PROCEDURE - MOTOR TEST:

6. When checking the motor, remove the two (2) screws from the connector on the motor leads between the motor and control unit. Separate the seal assembly exposing the connectors on the red and yellow motor wires. CAUTION: *Make note of how the wires and connectors assembled for reassembly later. The wire connectors may be led wrong even though the colors match* Disconnect the motor leads.

WARNING: ***Under no condition should power be applied to the motor leads while the motor is still connected to the control unit or damage to the control unit will result voiding the warranty.***

Connect a 10 gauge jumper wire to the RED wire in the vehicle half of the four way plug. This wire must have power. See Step #2 of the VEHICLE WIRING TEST PROCEDURE: Connect another 10 gauge wire to the ring terminal on the end of the 31" long 10 ga. green ground wire (See Figure 8).

Figure 8



TO RETRACT STEP: Connect the ground jumper wire (jumper from the green ground wire) to the RED motor lead. Touch the power jumper wire (jumper from four way plug) to the YELLOW motor lead.

TO EXTEND STEP: Connect the ground jumper wire (jumper from the green ground wire) to the YELLOW motor lead. Touch the power jumper wire (jumper from four way plug) to the RED motor lead.

CAUTION: *Do not leave the jumper wire connected to the motor terminal for more than it takes to extend or retract the step or damage to the motor may result.*

If the motor fails to move, the motor may be defective. If the step has been struck by some kind of road hazard, the step mechanism may be bent and causing the step to bind. The control unit would then shut off power to the step as described in the BASIC SUMMARY OF OPERATION. Check for physical damage to the tread, sliding rails, extending arms, etc. Also check all pivot points for rusting. (See the LUBRICATION AND MAINTENANCE SCHEDULE)

If the step doesn't move when power is applied to the motor terminals, but a dim spark is noticeable, there may be damage to the windings inside the motor, requiring replacement of the motor. A dim spark may also indicate a shorted or burned out motor requiring replacement.

TEST PROCEDURE - CONTROL UNIT TEST:

7. The motor must be operational to test the control unit using this procedure. See MOTOR TEST PROCEDURE.

a. Ground the negative (-) post of a well charged 12 volt DC battery to the ring terminal on the end of the 31" long 10 ga. green ground wire.

NOTE: **A *well charged battery will read at least 12 7 volts DC when a voltmeter is connected between the battery posts.***

b. The motor leads must be connected to the control unit.

c. The four way plug between the control unit and the vehicle should be disconnected. Install pigtail (four way plug - vehicle half - Part *9336 - same plug as supplied with the step for connection to the vehicle) into the control unit half of the four way plug.

d. Touch the RED and WHITE wires of the pigtail to the positive (+) post of the battery. At the same time, touching the BROWN wire to ground (10 ga. green wire) will cause the step to extend. **CAUTION:** ***Keep hands clear of the step mechanism.***

e. When the BROWN wire is removed from the green ground wire the step should retract.

f. Extend the step again by applying power to the RED and WHITE wires and grounding the BROWN wire to the green ground wire. Remove the RED and WHITE wires from the battery before removing the BROWN wire from ground. This will cause the step to remain in the extended position.

g. To test the ignition safety system circuit, apply power to both the RED and YELLOW wires of the four wire pigtail and the step should retract.

h. On control units #9513 and #9590: To test the "last out feature", remove the YELLOW wire from the battery without removing the RED wire. Ground the BROWN wire to the green ground wire and the step should extend. If the RED wire is removed from the battery before grounding the BROWN wire, Step *7f and #7g must be repeated before testing the last out feature. This test will only work if performed immediately after the ignition safety system test.

i. If the control unit tests okay, then recheck all wire and ground connections. If the source of the trouble cannot be found, feel free to contact the customer service department for further information or assistance.

j. If the above tests do not check out, the control unit may be defective and should be returned to the factory for evaluation.

In most cases the control unit does not fail and problems can be traced to vehicle wiring or voltage problems.

Instructions for removing the motor assembly (part #9501) from the step frame and disassembly:

Read all instructions before starting any procedure.

Refer to the motor assembly exploded view drawing on the opposite page for the item numbers referred to in these instructions.

1. Unplug the control unit from the vehicle (four way plug). Do not cut any wiring.
2. Remove the two (2) screws (Item #12) from the connector (Item #18 and #19) on the motor leads between the motor and the control unit. Remove the seal assembly (Item #20). CAUTION: *Make note of how the wires and connectors are* assembled *for reassembly later. The wire connectors may be assembled wrong even though the colors math* (See Figure 2 on page #C-52)
3. It is easiest to remove the motor assembly from the step frame if the step tread(s) are in a partially extended position. Try to extend the step by following the procedure outlined in Step #6 under the TEST PROCEDURE - MOTOR TEST. If the step is locked in the up position and will not move, read Steps #4 and #5 below before preceding.
4. Remove the hair pin (Item #6) from the clevis pin (Item #7).
5. Remove the clevis pin (Item #7) from the cast block in the end of the linkage assembly (Item #8, #9 or #10). Note which direction the clevis pin goes into the cast block. If the step is in its locked position, the clevis pin may have to be pried or driven out of the block. If the step is in the locked position, loosening the motor assembly mounting bolts may allow the clevis pin to be removed easier. The step tread(s) should swing freely when the clevis pin is removed. If the tread does not move freely, check for a bent step frame and for rusting at the pivot points.
6. MOTOR REMOVAL - The motor (Item #5 or #5A) may be removed without removing the gear box or linkage assembly simply by removing the three (3) screws (Item #4) along with the bearing bracket (Item #2).
7. GEAR BOX REMOVAL- Unbolt the gear box mounting plate (Item #16) from the step frame.
8. Remove the beating (Item #3) and the linkage assembly (Item #8, #9, or #10) from the gear case (Item #11) along with the adapter gear (Item #1) and shaft (Item #17).

9. Turn the gear box assembly over and remove the four (4) 1-1/4" long #10 self tapping screws (Item #13) from the gear case. Lift off the mounting plate (Item #16).
10. Remove the bearing (Item #3). Lift off the gear case cover (Item #15) and lift out the gear (Item #14). Note which side of the gear goes up.

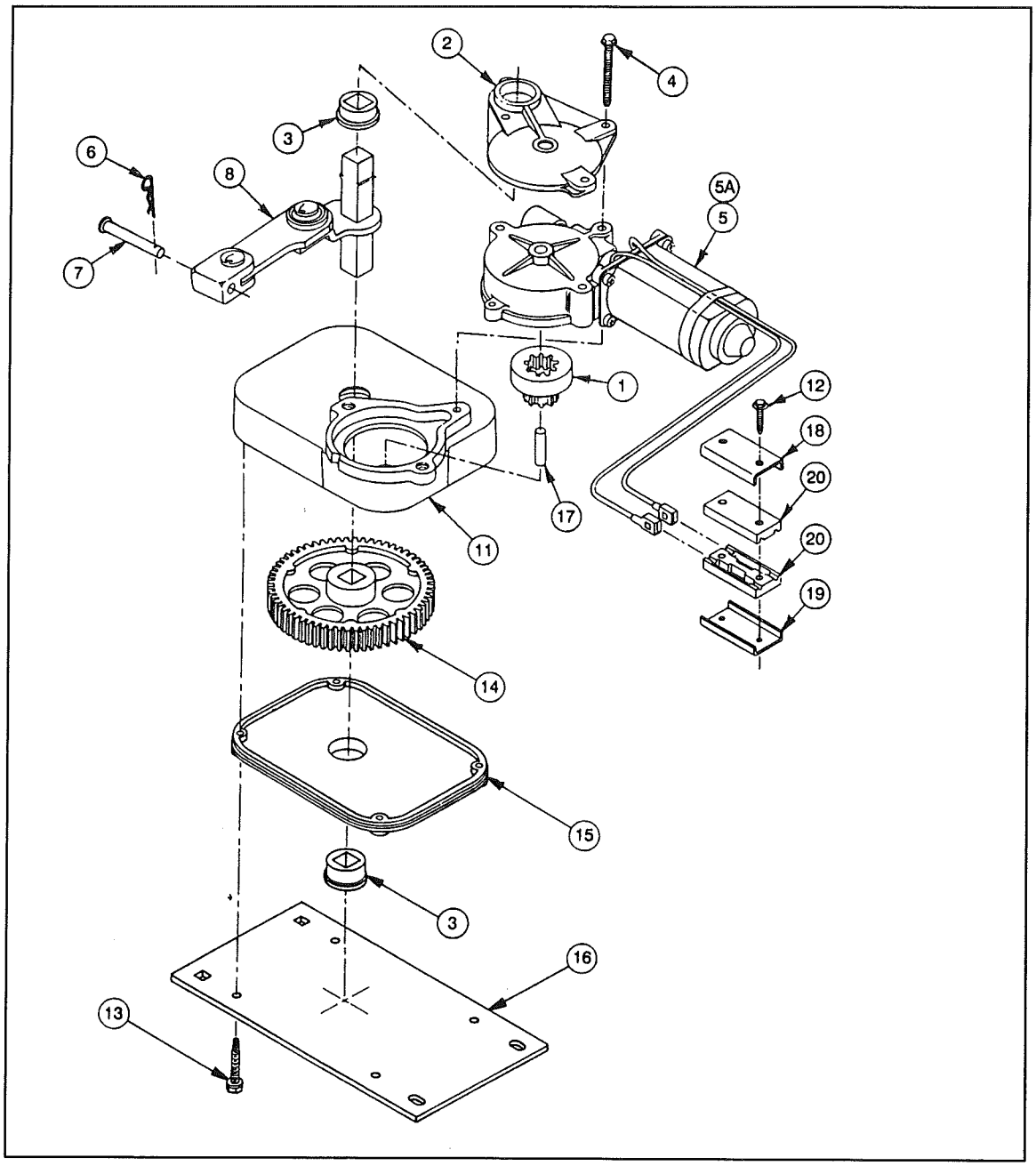
Reassembly and installation of the motor assembly (part #9501) on the step frame:

Read all instructions before starting any procedure.

Refer to the motor assembly exploded view drawing on the opposite page from the item numbers inferred to in these instructions.

1. **NOTE** - In the following assembly be sure all bearing pockets and surfaces, gear teeth and the gear hub socket that is in the gear case are well lubricated with a good grade of lithium based grease.
2. Install the gear (Item #14) in the gear case (Item #11). Be sure the gear is reinstalled the same way it was removed (With the penny sized depressions down).
3. Place the gear case cover (Item#15) on the gear case. Set the bearing (Item #3) in the center hole of the gear case cover (the flange of the bearing should be up) and align the square hole in the bearing with the square hole of the gear.
4. Place the mounting plate (Item #16) on the gear case cover (the square holes in the mounting plate should be away from the motor) and install and tighten the four (4) 1-1/4" long #10 self tapping screws (Item #13).
5. Turn the motor assembly over and set it on the flat mounting plate. Install the linkage assembly (Item #8, #9, or #10) into the gear case. Be sure the linkage assembly seats all the way into the gear and bearing or the bearing bracket (Item #2) will not set properly. The swivel ball and cast block should face the front of the motor assembly.
6. Place the bearing (Item #3) on the linkage assembly shaft. Place the flange of the bearing down.
7. Lubricate and set the adapter gear (Item #1) and adapter gear shaft (Item #17) in place and mesh with the main gear (Item #14).
8. Replace the motor (Item #5 or #5A) by carefully aligning the motor and adapter gear (Item #1) so they slide together. Align the holes and push the motor into the screw hole alignment pockets in the gear case.
9. Place the bearing bracket (Item #2) on the motor assembly and install and tighten the motor screws (Item #4). These screws must be very secure.
10. Reinstall the motor assembly on the step frame and tighten all mounting bolts.
    NOTE- ***Be sure the motor*** **assembly** ***is positioned the same way the old one was prior to removal.***
11. Install the clevis pin (Item #7) through the drive arms attached to the step frame and the cast block in the linkage assembly (Item #8, #9, or #10). Be sure to reinstall the clevis pin in the same direction it was removed. Install the hair pin (Item #6) in the clevis pin.
12. Reassemble the motor to control unit leads. See Step #2 in column 1 under disassembly on this page.
13. Connect the control unit to the vehicle (four way square plug).
14. Test step functions.

MOTOR ASSEMBLY



ITEM NO.	PART NO.	DESCRIPTION	Qty. Per Motor Assembly	ITEM NO.	PART NO.	DESCRIPTION	Qty. Per Motor Assembly
1	9556	Adapter Gear	1	12	9561	#6 Self Tapping Hex Washer Head Screw - Type 23 - 3/4' Long	2
2	9552	Motor Bearing Bracket	1				
3	9045	Bearing	2				
4	9560	#10 Self Tapping Hex Washer Head Screw - Type 23 - 1-3/4" Long	3	13	9298	#10 Self Tapping Hex Washer Head Screw - Type 23 - 1-1/4' Long	4
5	9550	Motor	1	14	9038	Gear	1
6	9018	Hair Pin	1	15	9037	Gear Case Cover	1
7	9017	Clevis Pin	1	16	7039	Motor Mounting Plate	1
8	9553	Linkage Assembly for Motor Assembly #9501	1	17	9557	Adapter Gear Shaft	1
				18	9559	Clamp Plate - Upper	1
				19	9562	Clamp Plate - Lower	1
11	9555	Gear Case	1	20	9558	Wire Connector Seal	2

LUBRICATION AND MAINTENANCE SCHEDULE

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

Refer to figures below for lubrication locations:

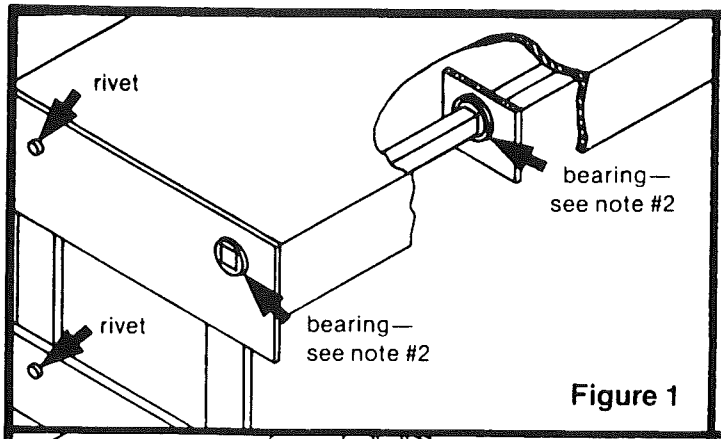


Figure 1

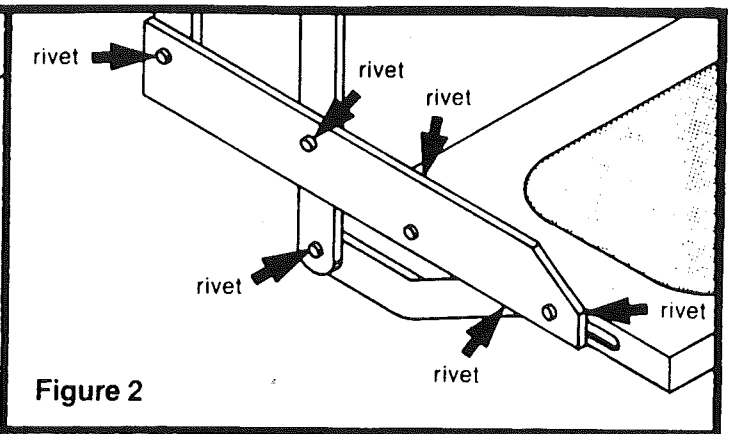


Figure 2

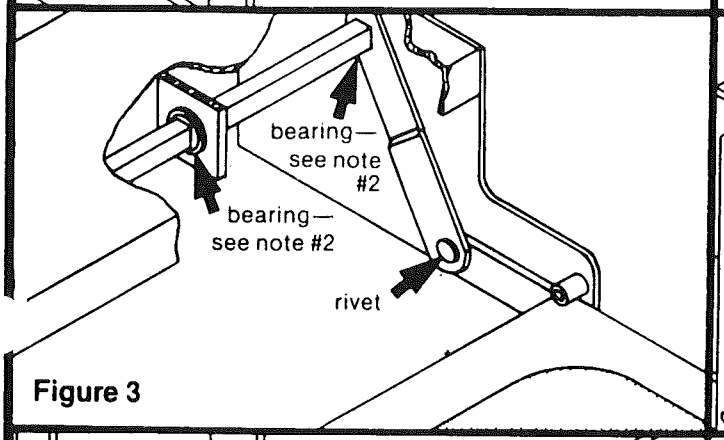


Figure 3

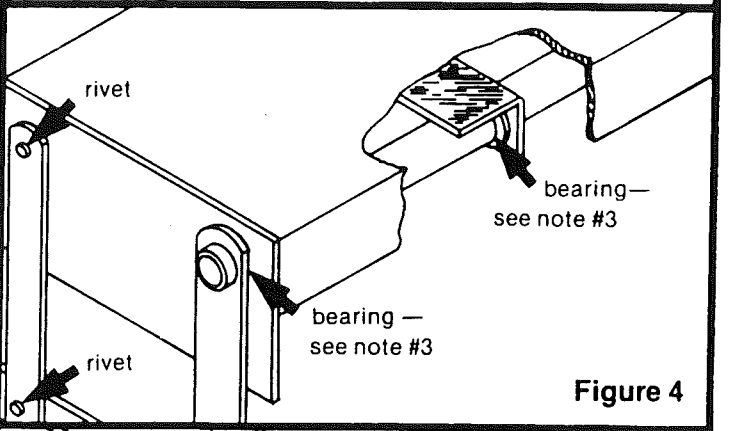


Figure 4

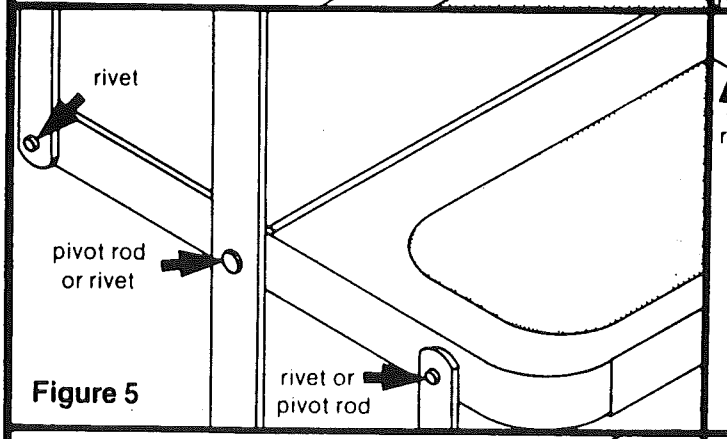


Figure 5

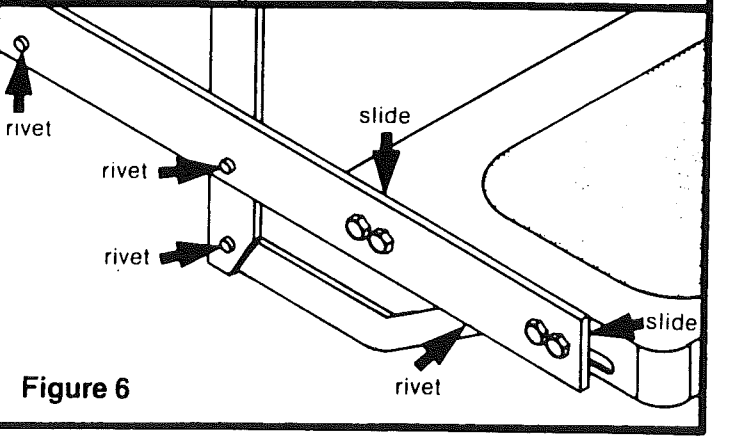


Figure 6

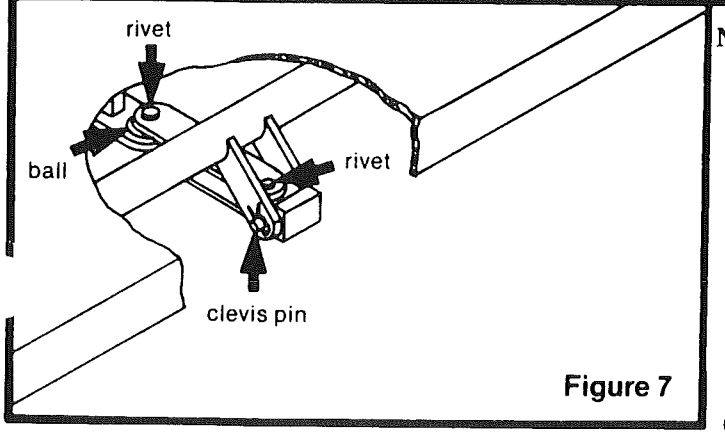


Figure 7

NOTE —

1. Figures are to be used as a general reference only. Some may not pertain to your particular step model. Views are typical to both ends of step.
2. Figures 1 & 3 - square shaft bearing - lubricate around outside and under head of bearing.
3. Figure 4 - 1" O.D. tube bearing - lubricate around drive tube and between head of bearing and drive leg.

NOTES

CAMPING

SAFETY

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

WARNING: ***The escape window (which is the rear, roadside windows) is opened by pulling the red latch handles inward then pushing the bottom of the sash out. The pleated shade is opened by sliding it straight up. The window operation should be checked each trip.***

WARNING: ***At each campsite make sure you have not parked in such a manner as to block the operation of the escape window by being too close to trees, fences or other impediments. Scenic views are one reason for traveling, but don't park so the beautiful lake or steep cliff is just outside your escape window.***

WARNING: ***Read the directions carefully on the fire extinguisher. If there is any doubt on the operation, you and your family should practice, then replace or recharge the extinguisher. You will find your local fire department will be happy to assist you and answer any questions.***

WARNING: ***DON'T SMOKE IN BED!***
KEEP MATCHES OUT OF REACH OF SMALL CHILDREN!
DON'T CLEAN WITH FLAMMABLE MATERIAL!
KEEP FLAMMABLE MATERIAL AWAY FROM OPEN FLAME!

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

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

SMOKE DETECTOR

OPERATION AND MAINTENANCE

The PROBE Battery Powered Smoke Alarm operates on the ionization principle of fire detection. That is, the ionization chamber inside the unit monitors the air to detect particles of combustion present as a result of smoke.

When the small current inside the ionization chamber is decreased, indicating the presence of smoke, the alarm sounds.

Probe Smoke Alarms only **warn** of a situation which may be potentially hazardous. No smoke alarm can eliminate the hazard.

Your PROBE Smoke Alarm requires very little maintenance.

The unit should be vacuumed occasionally to remove dust. Simply hold the nozzle of the vacuum near the alarm cover and the suction will remove any dust particles. (DO NOT TRY TO OPEN THE ALARM OR PLACE THE VACUUM NOZZLE INSIDE THE ALARM COVER.)

Battery Replacement

When the battery begins to weaken, a warning "chirp" will sound at least twice per minute for about a month. To replace the battery simply remove the alarm from the mounting bracket (turn counter-clockwise), remove the old battery and replace it.

*Model #105 with silencer provides a 15 minute pause button to quiet nuisance alarms. Perfect for confined areas (cooking areas, furnace rooms, etc.)

Carbon Monoxide Alarm

In the rear bedroom of your motorhome is a CARBON MONOXIDE detector. On the face of the detector is the statement "Additional Instruction on Back".

Following are those instructions verbatim:

LED LIGHTS - GREEN - ON
RED - ALARM see steps to take during alarm
YELLOW - MALFUNCTION return immediately

USE 1 AMP IN-LINE FUSE

WARNING: Carbon Monoxide cannot be seen or smelled and can kill you.

DANGER: Le monoxyde de carbone est incolore et inodore. L'inhalation de ce gas peut être mortelle.

STEPS TO TAKE DURING AN ALARM: 1) Press the reset switch. 2) Turn off all appliances and other sources of combustion at once (furnace, gas water heater, wood burning, or gas burning fireplace, stove and the like). 3) Evacuate the building/RV including pets. Open windows and exterior doors on the way out to get fresh air into the premises/RV. 4) Call the fire department. Do not return to the building or vehicle until the problem has been repaired.

MAINTENANCE: Keep ventilation openings dust free. Do not spray cleaners or chemicals directly onto the case. Refer to owner's manual for complete operation and installation instructions.

IMPORTANT: NOT SUITABLE AS A FLAMMABLE GAS OR SMOKE DETECTOR

IMPORTANT: Ne convient pas à la détection des gaz inflammables ou de la fumée.

E151570

MTI INDUSTRIES INC. 1000 BROWN ST. #109
WAUCONDA, IL 60084 109 800-383-0269

LP Leak Test

In the refrigerator inspection compartment, a LP gauge has been plumbed in the gas line. To check for leaks, open the LP tank valve, then turn appliances off. The gas pressure should not drop any more than 2 inches of water column pressure in a 30 minute time span. Further information is located in the plumbing section of this manual.

OVERNIGHT STOP

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

Overnight or Weekend Trips

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

Longer Trip

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

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

Hydraulic Leveling Jacks

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

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

1. Turn on LP gas supply and light appliance pilots if required.
2. Turn on water pump and open faucets until air is expelled from the system.

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

WINTER TRAVELING

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

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

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

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

1. You must have a plentiful supply of propane gas.
2. If your stay is longer than overnight, you should endeavor to have 120-volt electricity available. The batteries, fully charged, will not last more than about 15 hours in freezing weather. Of course, you can run your generator to recharge the batteries, or even use the generator continually.
3. Minimize use of electricity if 120 volt power source is not available.
4. Leave cabinet doors, bed doors and wardrobe doors slightly open at night to allow circulation of air in and around all furniture components.

5. Use propylene glycol type antifreeze in waste and drain water tanks to prevent freezing. Quantity of antifreeze needed will vary with ambient temperature and the amount of liquids in tank.

6. For extended stays in cold weather, insulate the water line outside the motorhome. You should remember that low temperatures in combination with high winds cause an equivalent chill temperature much below what your thermometer is reading. For instance, with an outside temperature of zero degrees, and the wind velocity of 10 miles per hour, the equivalent chill temperature is minus 20° F.

Condensation

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

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

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

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

There is no substitute for common sense in cold weather.

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

EXTENDED STAY

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

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

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

Note: Before the optional slide-out room can be deployed the ignition switch must be off and the remote safety switch must be on. The remote safety switch is located in the exterior compartment directly below the room. The intent of the switch is to allow you to decide when the room should be operated.

To operate SLIDE-OUT ROOM, push and hold rocker switch located in the RV or on the power unit itself. If manual operation is required, simply refer to instructions on power unit to operate the Hand-Pump. If cylinder(s) are to remain in the extended position for several weeks at a time, especially in a salt-air environment, a film of grease should be applied to the exposed chrome portion of the cylinder rod.

Oil reservoirs should be full only when all cylinders are FULLY RETRACTED (all rooms are IN). If replacement oil is required, any automatic transmission fluid is acceptable. Otherwise, NO MAINTENANCE IS REQUIRED.

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

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

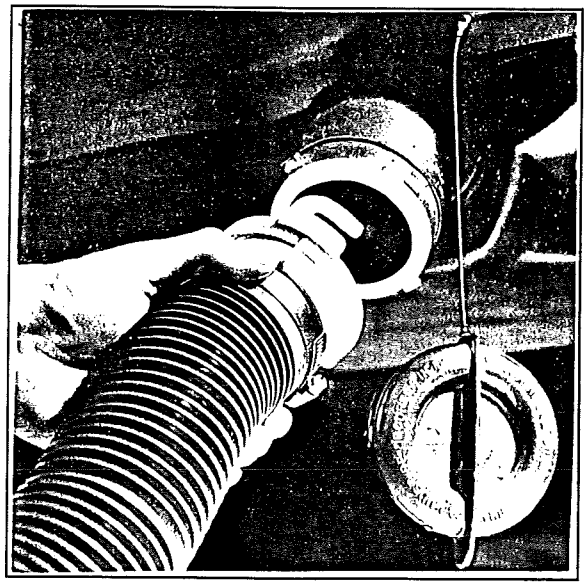
A Cable TV Hookup is located on the roadside rear corner of the motorhome. It is already wired into the existing system, so the exterior connection is all that is required.

To operate the Generator simply start the generator at the control panel. After the generator has run a couple of minutes, an automatic relay will close and current from the generator will be supplied to the 120-volt circuit breakers. This is indicated by the AC power light on the control panel starting to glow. Operating the generator for about one hour each day will normally keep the battery charged.

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

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

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



Sewage Outlet

NOTES

EXTERIOR

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

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

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

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

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

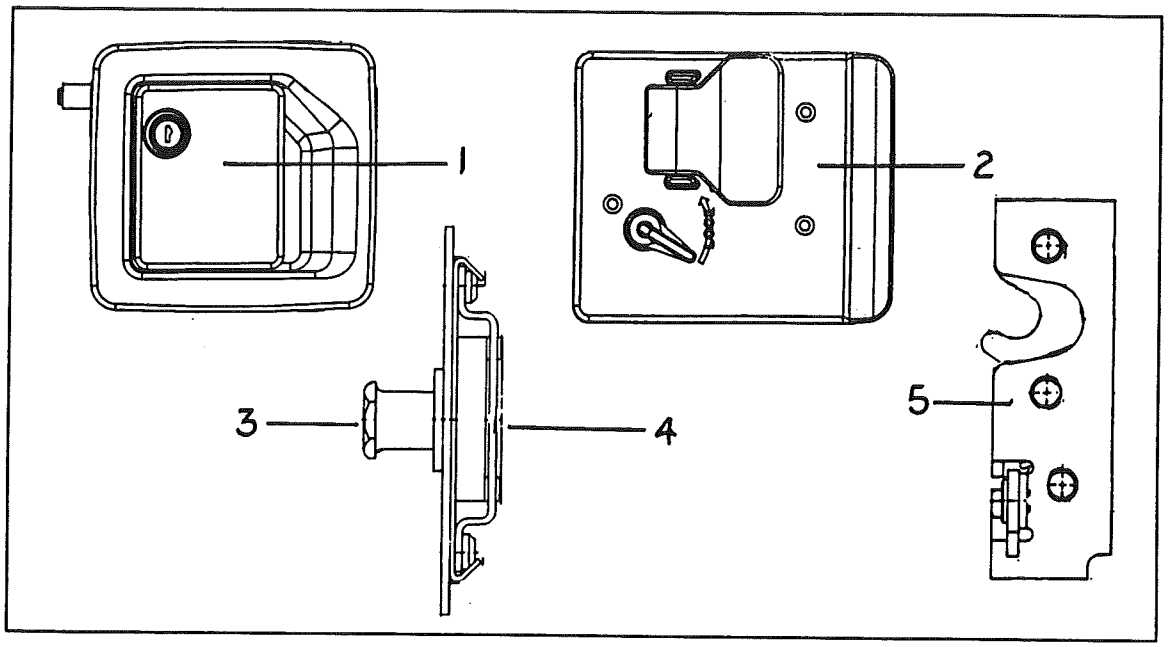
Roof Ladder and Storage

For traveling, the ladder should be hinged down and snapped securely into the nylon sockets. If the ladder is down and rear engine access is required, the bottom of the ladder is pulled out of the sockets (a good hard tug is needed) then swung up vertically. As it nears vertical, the slot in the hinge will fall into a locked position and hold the ladder up. To lower, raising up on the ladder will release the hinge and allow the ladder to be pivoted down to use position.

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

MAIN DOOR LOCK

LOCK ASSEMBLY, MAIN DOOR



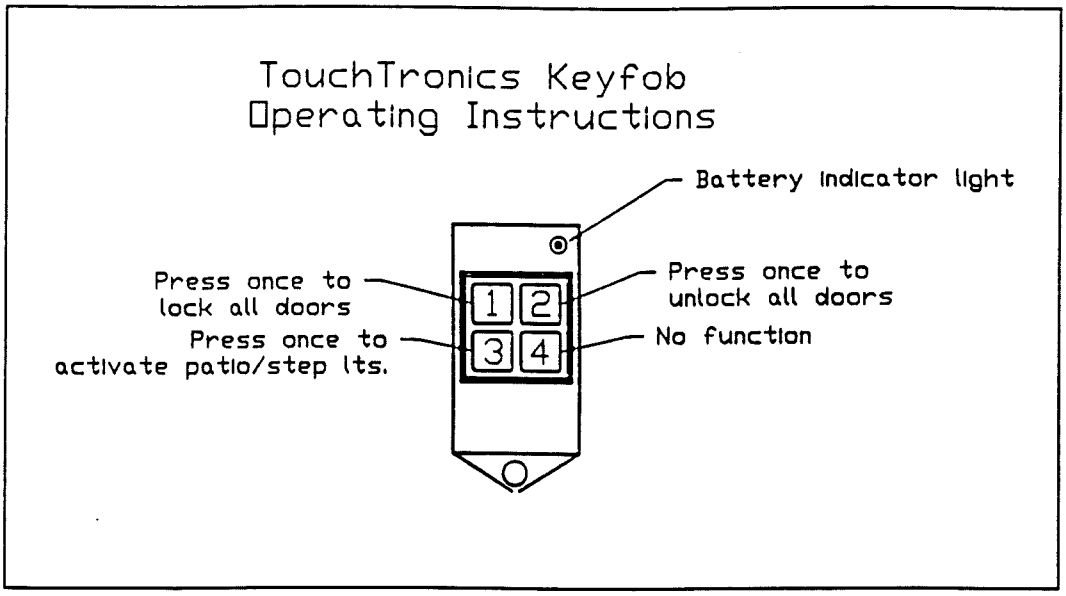
1. Outside housing assembly
2. Inside plate
3. Striker bolt
4. Caged nut
5. Rotary latch

KEYLESS DOOR LOCK (OPTIONAL)

Operation

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

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



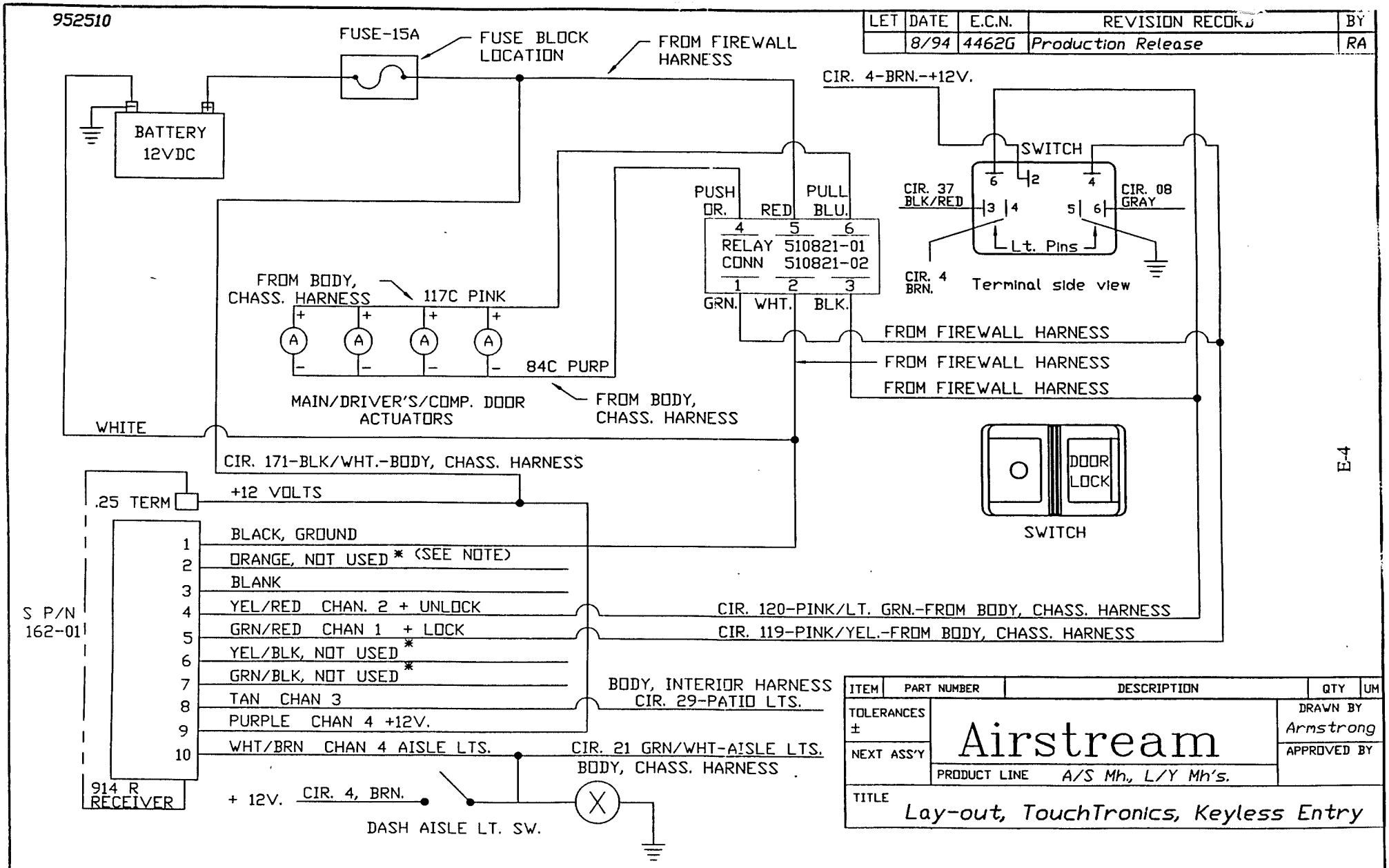
Service

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

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

952510

LET	DATE	E.C.N.	REVISION RECORD	BY
	8/94	4462G	Production Release	RA



ITEM	PART NUMBER	DESCRIPTION	QTY	UM

TOLERANCES ±

NEXT ASS'Y

Airstream

PRODUCT LINE A/S Mh., L/Y Mh's.

DRAWN BY Armstrong

APPROVED BY

TITLE Lay-out, TouchTronics, Keyless Entry

INTERIOR

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

Lounges

To convert the Deluxe Sofa into a bed, it is only necessary to grasp the front edge of the seat, raise and pull it toward the aisle of the motorhome. The back rest will slide down into place automatically.

Dinette

The main dinette table leaf is hinged to the credenza shelf. Grasp the edge of the leaf by the floor and swing up to a horizontal position. The table leg is held in place by gas struts and can be swung down to support the leaf.

To install the extension leaf the main leaf is slid out further in the aisle. It must first be released from the credenza by pivoting the sash lock handles located under the leaf next to the credenza.

Cocktail Chairs

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

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

CAUTION: Rotating the chair when it's slid back against the wall can damage the upholstery. Position the chair so it isn't chafing when in transit.

Fabric Cleaning

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

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

Cleanability Codes

CODE W-S

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

CODE S

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

CODE W

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

CAUTION:

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

SMOKING WARNING

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

Drapes

Use the following procedures to remove drapery panels for cleaning:

Front Wrap Around Drapes

1. Remove screws securing rear end of drapery track bracket to wall, both roadside and curbside.

2. Slide draperies to the rear until they are clear of track.

3. After reinstalling drapes, replace screws in bracket.

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

To prevent excessive wear to drapery linings, blinds must be secured at the bottom and slats turned vertically when driving long distances.

Shades

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

Carpet

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

Hardwood Flooring

Two different hardwood floors are available - - planked or parquet. Care is the same for both. 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 areas

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

Walls/cabinets

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

Drawers

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

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

Bathroom

CAUTION: The lavatory bowl and countertop in your bathroom are made of a special cultured marble. When cleaning, use soap or detergent only. NEVER USE SCOURING POWDER.

Shower Stall

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

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

PLUMBING

LPG SYSTEM

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

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

WARNING:

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

CAUTION:

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

WARNING:

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

LPG Regulator

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

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

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

BASIC RULES FOR SAFETY

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:

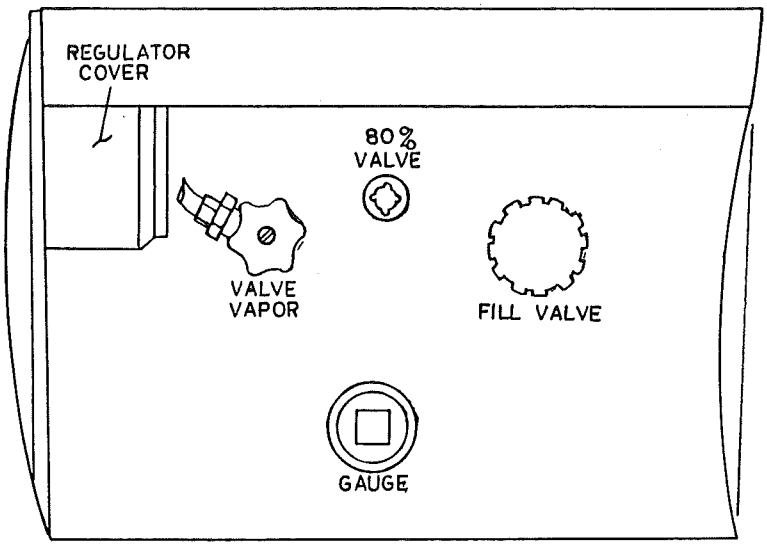
If you smell gas:

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.**

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.

LP TANK INSTALLATION

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



WARNING: Do not attempt to seal regulator cover.

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

Gas Regulator Removal/Replacement

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

LPG System Pressure Check

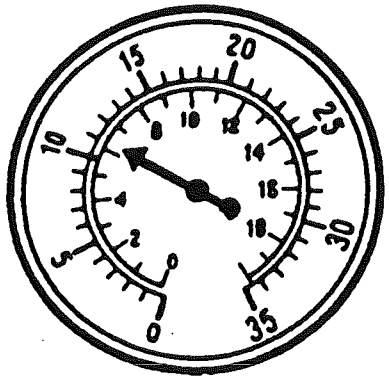
Use a pressure gauge. (See Illustration)

This gauge is calibrated to read in "inches of water column pressure" or kilopascals. Our reference figures will always use the American inches of water column.

It can be viewed by opening the exterior refrigerator access compartment. Since it's permanently plumbed into the system, it constantly monitors the pressure.

The optimum pressure is 11.5 inches of water column. The pressure should never be less than 11.0, nor higher than 12.0 inches with all appliances operating or off.

LOW PRESSURE GAUGE



To use the gauge to check for leaks:

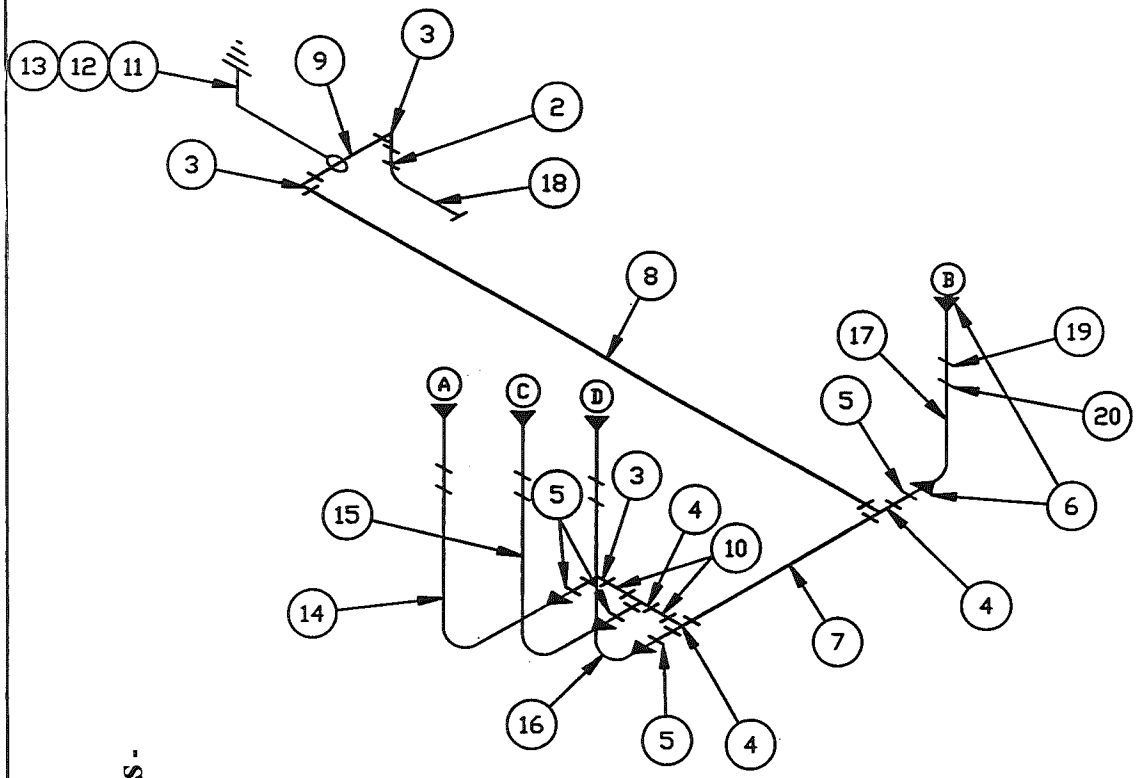
- Turn all appliances and pilots off.
- After two minutes shut main valve off at LP tank
- Loosen fitting at main valve so high pressure is released from line between tank and LP regulator
- * No pressure drop should be seen on the gauge within 10 minutes.

***NOTE:** The American Gas Association allows some gas leakage through valves. Reference their regulations A-119 and Z-21.21. This allowable seepage may cause some pressure drop within the 10 minute check period.

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

943451

A. RANGE TOP - MAGIC CHEF 85RB-3BT
17,500 BTU, AGA/CGA, P/N 690348
B. WTR HTR - ATWOOD 6GH-6E
8,800 BTU, AGA/CGA, P/N 690225
C. REFRIG - DOMETIC RM 2807.2
1500 BTU, AGA/CGA, P/N 690343
D. FURNACE - HYDROFLAME 8535
35,000 BTU, AGA/CGA, P/N 690274



GAS LINES -
30 FOOT

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
20	380887	GROMMET, FLOOR	4	EA
19	380886	GROMMET, FLOOR	4	EA
18	601278	HOSE LOW PRESSURE 12"	1	EA
17	600008	TUBING COPPER 3/8OD 110"	9.17	FT
16	600008	TUBING COPPER 3/8OD 86"	7.17	FT
15	600008	TUBING COPPER 3/8OD 96"	8.00	FT
14	600008	TUBING COPPER 3/8OD 108"	9.00	FT
13	500839	WIRE,BARE COPPER 8 GA.	1	FT
12	500038	LUG GROUND	1	EA
11	600661	GROUNDING CLAMP 1/2 TO 1 SIZE	1	EA
10	601407-01	1/2"SCH.#40 BL.PIPE,H.I. 2.00"	0.35	FT
9	601407-02	1/2"SCH.#40 BL.PIPE,H.I. 18.00"	1.50	FT
8	601407-03	1/2"SCH.#40 BL.PIPE,H.I. 61.50"	5.55	FT
7	601407-06	1/2"SCH.#40 BL.PIPE,H.I. 48.00"	4.00	FT
6	600435	FORGED FLARE NUTS 3/8IN	8	EA
5	601412-08	CONNECTOR-M, .50 PIPE TO .38 TUBE	4	EA
4	601409	1/2 TEES	3	EA
3	601408	1/2" 90 DEGREE ELBOW	3	EA
2	601412-12	CONNECTOR-M, .50 PIPE TO .62 TUBE	1	EA
1	601335	HOSE, LP, TANK TO REGULATOR 10"	1	EA
D		FURNACE,HYDROFLAME#8535 35000BTU	1	EA
C		REFR RM 2800 2-WAY 8 CU. FT.	1	EA
B		WATER HEATER,ELEC IGN W/MOTORAID	1	EA
A		RANGE TOP 3-BURNER	1	EA

TOLERANCES ±

NEXT ASS'Y

Airstream

PRODUCT LINE 30' FORD BUS

DRAWN BY DN

APPROVED BY

TITLE LP GAS SYSTEM

SCALE	DATE	DRAWING NUMBER	REV.
1=24	12/09/94	943451	B

943462

A. RANGE TOP - MAGIC CHEF 85RB-3BT
17,500 BTU, AGA/CGA, P/N 690348
B. WTR HTR - ATWOOD 6GH-6E
8,800 BTU, AGA/CGA, P/N 690225
C. REFRIG - DOMETIC RM 2807.2
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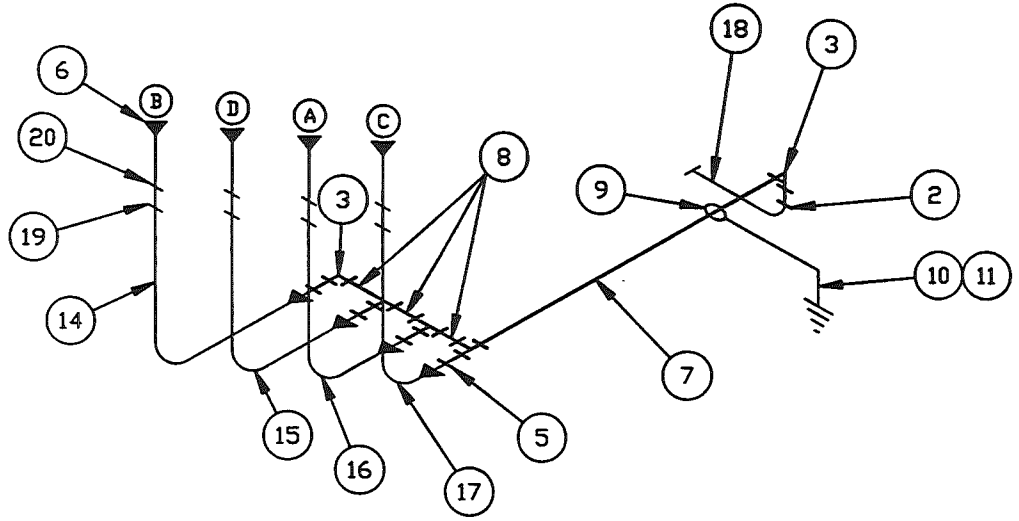
35,000 BTU, AGA/CGA, P/N 690274



GAS LINES - 34 FOOT

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
18	601279	LP GAS HOSE,18",#4481345-18	1	EA
17	380887	GROMMET, FLOOR	4	EA
16	380886	GROMMET, FLOOR	4	EA
15	600008	TUBING COPPER 3/8OD 160"	13.34	FT
14	600008	TUBING COPPER 3/8OD 120"	10.00	FT
13	600008	TUBING COPPER 3/8OD 60"	5.00	FT
12	600008	TUBING COPPER 3/8OD 60"	5.00	FT
11	500839	WIRE,BARE COPPER 8 GA.	1	FT
10	500038	LUG GROUND	1	EA
9	600661	GROUNDING CLAMP 1/2 TO 1 SIZE	1	EA
8	601411	1 1/2 MALE ADAPTOR (CLOSE NIP)	3	EA
7	601407-03	PIPE STEEL 1/2 ID SCH.40 BLK 66.5	1	EA
6	600435	FORGED FLARE NUTS 3/8IN	8	EA
5	601412-08	CONNECTOR-M, .50 PIPE TO .38 TUBE	4	EA
4	601409	1/2 TEES	3	EA
3	601408	1/2" 90 DEGREE ELBOW	2	EA
2	601412-12	CONNECTOR-M, .50 PIPE TO .62 TUBE	1	EA
1	601335	HOSE, LP, TANK TO REGULATOR 10"	1	EA
E		FURNACE,HYDROFLAME#8516 16000BTU	1	EA
D		FURNACE,HYDROFLAME#8531 31000BTU	1	EA
C		REFR RM 2800 2-WAY 8 CU. FT.	1	EA
B		WATER HEATER,ELEC IGN W/MOTORAID	1	EA
A		RANGE TOP 3-BURNER	1	EA

TOLERANCES ±

NEXT ASS'Y

Airstream

PRODUCT LINE 34' FORD BUS

DRAWN BY DN

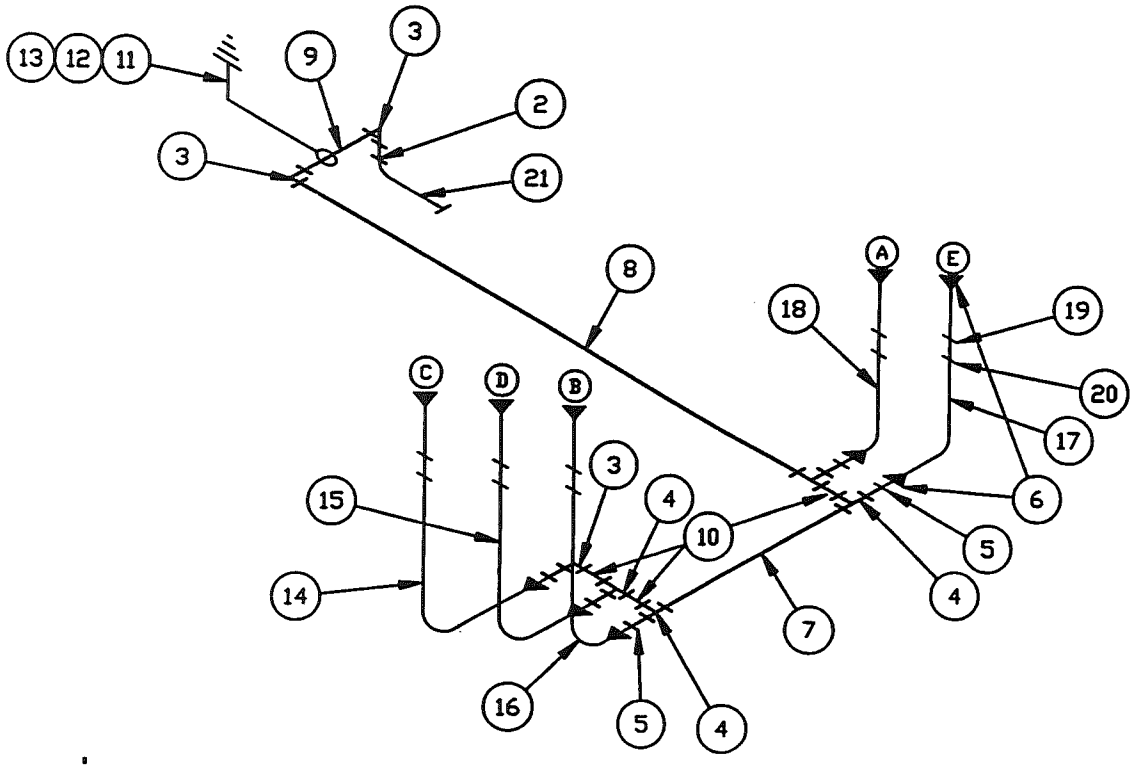
APPROVED BY

TITLE LP GAS SYSTEM

SCALE	DATE	DRAWING NUMBER	REV.
1=24	12/23/94	943462	B

943456

A. RANGE TOP - MAGIC CHEF 85RB-3BT
17,500 BTU, AGA/CGA, P/N 690348
B. WTR HTR - ATWOOD 6GH-6E
8,800 BTU, AGA/CGA, P/N 690225
C. REFRIG - DOMETIC RM 2807.2
1500 BTU, AGA/CGA, P/N 690343
D. FURNACE - HYDROFLAME 8531
31,000 BTU, AGA/CGA, P/N 690274-01
E. FURNACE - HYDROFLAME 8516
16,000 BTU, AGA/CGA, P/N 690274-02



GAS LINES -
36 FOOT

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
21	601278	HOSE LOW PRESSURE 12"	1	EA
20	380887	GROMMET, FLOOR	5	EA
19	380886	GROMMET, FLOOR	5	EA
18	600008	TUBING COPPER 3/8OD 145"	12.09	FT
17	600008	TUBING COPPER 3/8OD 38"	3.17	FT
16	600008	TUBING COPPER 3/8OD 75"	6.25	FT
15	600008	TUBING COPPER 3/8OD 85"	7.08	FT
14	600008	TUBING COPPER 3/8OD 96"	8.00	FT
13	500839	WIRE,BARE COPPER 8 GA.	1	FT
12	500038	LUG GROUND	1	EA
11	600661	GROUNDING CLAMP 1/2 TO 1 SIZE	2	EA
10	601411	1 1/2 MALE ADAPTOR	3	EA
9	601407-02	1/2"SCH.#40 BL.PIPE,H.I. 17.00"	1.42	FT
8	601407-9	1/2"SCH.#40 BL.PIPE,H.I. 186.00"	15.50	FT
7	601407-26	1/2"SCH.#40 BL.PIPE,H.I. 34.00"	2.84	FT
6	600435	FORGED FLARE NUTS 3/8IN	10	EA
5	601412-08	CONNECTOR-M, .50 PIPE TO .38 TUBE	5	EA
4	601409	1/2 TEES	4	EA
3	601408	1/2" 90 DEGREE ELBOW	3	EA
2	601412-12	CONNECTOR-M, .50 PIPE TO .62 TUBE	1	EA
1	601335	HOSE, LP, TANK TO REGULATOR 10"	1	EA
E		FURNACE,HYDROFLAME#8516 16000BTU	1	EA
D		FURNACE,HYDROFLAME#8531 31000BTU	1	EA
C		REFR RM 2800 2-WAY 8 CU. FT.	1	EA
B		WATER HEATER,ELEC IGN W/MOTORAID	1	EA
A		RANGE TOP 3-BURNER	1	EA

TOLERANCES ±

NEXT ASS'Y

Airstream

PRODUCT LINE 36' FORD BUS

DRAWN BY DN

APPROVED BY

TITLE LP GAS SYSTEM

SCALE	DATE	DRAWING NUMBER	REV.
1=24	12/09/94	943456	B

WATER SYSTEM - SELF CONTAINED

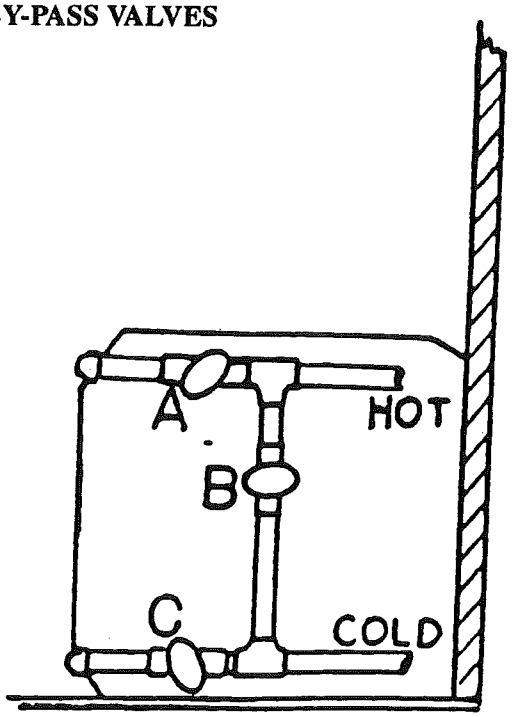
Most plumbing functions are accomplished in the plumbing utility compartment on the roadside of your motorhome. To fill your water tank, hook up a garden hose to the city water inlet then open the water tank fill valve in the upper right corner of the compartment. The water level can be monitored on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

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

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 to normal flow, open valves A and C. Close valve B. For winterizing B would be opened while A and C are closed. Access to the valves is by removing the panel with a finger pull in your lavatory cabinet.

WATER HEATER BY-PASS VALVES



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.

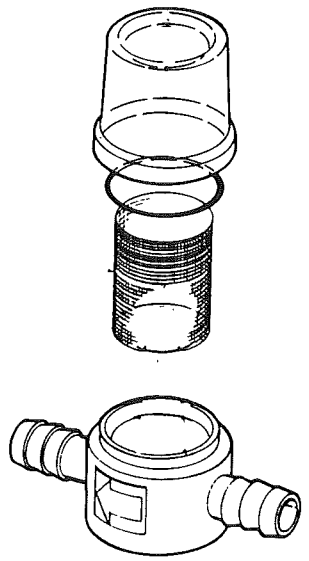
Once the system is filled with water and the faucets closed, the water pump will shut off. When a faucet is opened the pump will come back on automatically. If the faucet is just barely open it is normal for the pump to cycle on and off rapidly.

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 FILTER

The water pump and filter are located under the refrigerator. Access is gained by removing the panel directly below the refrigerator. In some cases wood plugs cover the screws and they can be pried out using the sharp point of a knife. The filter screen should be cleaned periodically to prevent accumulation of dirt and sand. To remove the screen, disconnect the rubber hoses from both ends, separate the screen housing, remove the screen, clean and replace.

WATER PUMP FILTER ASSEMBLY



To Disassemble Pump Filter

1. Unscrew top from base.
2. Pull top from base. Do not damage "O" ring seal.
3. Remove screen to clean or replace.
4. Lift "O" ring from its cavity. Lubricate with silicone grease.
5. Assemble by reversing above procedure.

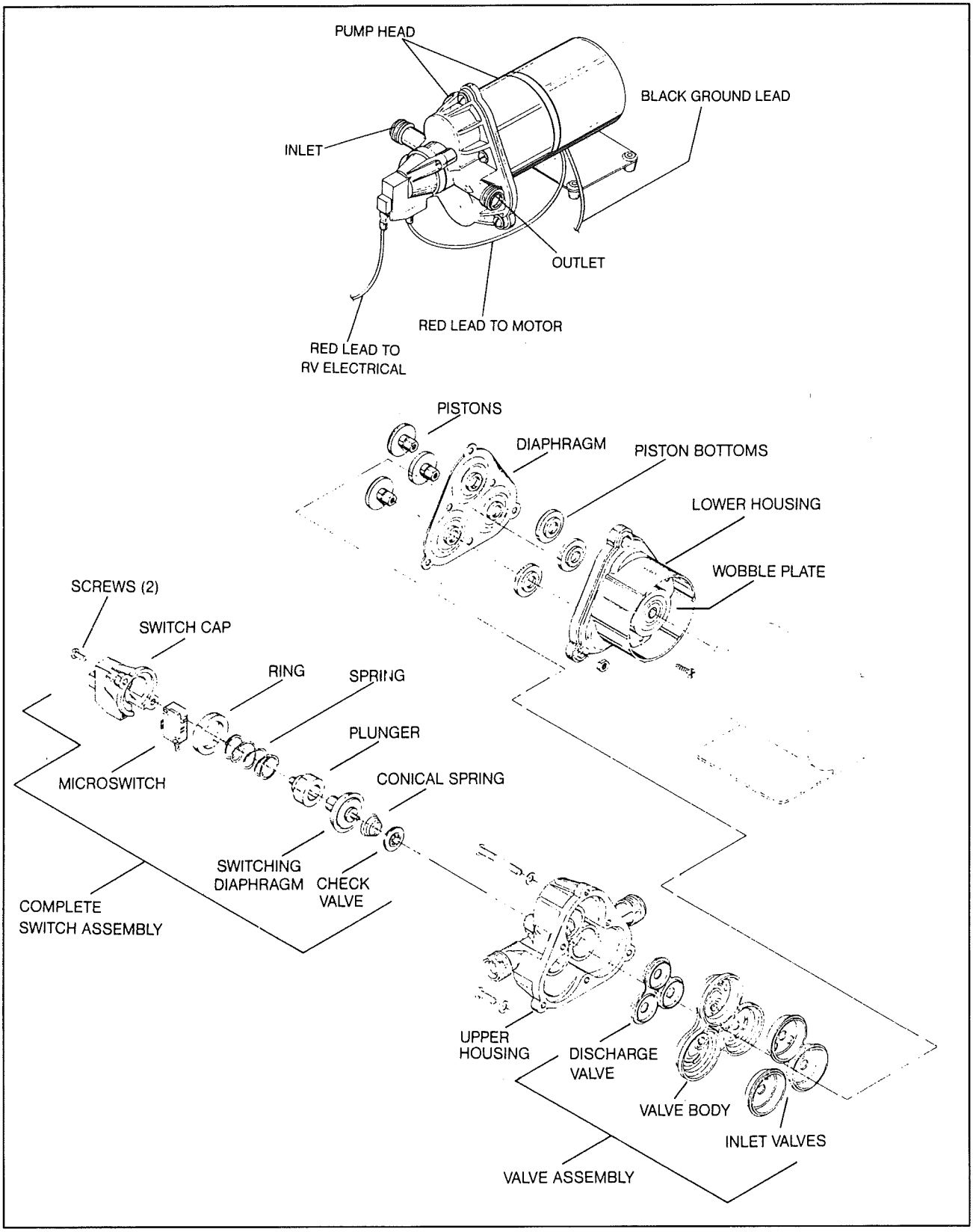
Cleaning Water Storage Tank

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

NOTES

WATER PUMP

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



Switch and Check Valve Repair

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

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

Replacement of Micro Switch

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

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

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

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

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

Check Valve Problems

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

Properly Installed, the Pump will:

PRIME: The pump will automatically prime itself.

AIR-LOCK: Pump will not air-lock as the compression stroke is powerful enough to pressurize the entrapped air and force the check valve open.

RUN DRY: Pump will run dry for extended periods without damage.

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

CHECK VALVE: Built-in check valve prevents back flow and can protect the pump from the dangers of high city water pressure (up to 200 PSI).

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

Trouble Shooting

MOTOR DOES NOT OPERATE

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

MOTOR RUNS BUT NO WATER FLOWS

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

MOTOR RUNS BUT WATER "SPUTTERS"

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

PUMP CYCLES ON AND OFF WHEN ALL OUTLETS ARE CLOSED.

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

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

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

PUMP DOES NOT ACHIEVE SHUT OFF

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

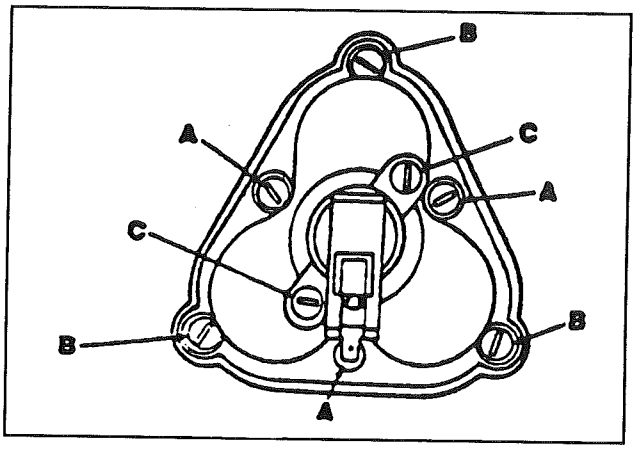
PUMP HEAD LEAKS

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

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

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

Pump Repair



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

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

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

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

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

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

PUMP HEAD REPAIR

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

LUBRICATION

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

FAILURE TO PRIME

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

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

PUMP CHAMBER REPAIR

Replacement of broken piston.

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

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

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

REPLACE A DIAPHRAGM

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

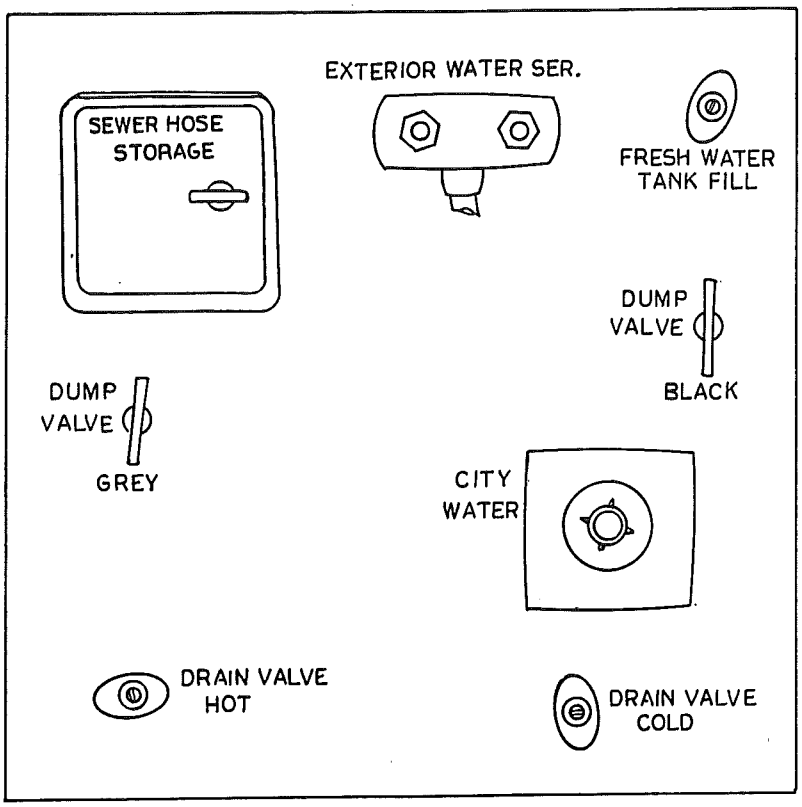
Screws (A) hold the piston.

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

CITY WATER HOOKUP

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

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



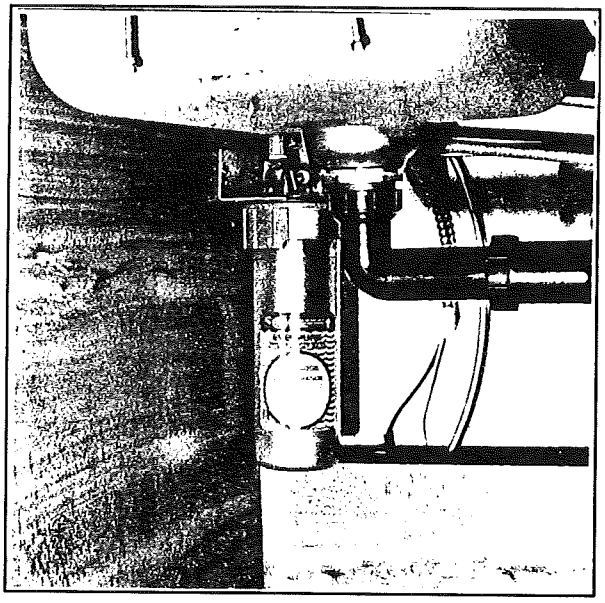
Use a high pressure hose of at least 1/2" diameter. It should be one that is tasteless, odorless and non-toxic designed for RV use. The city water inlet is a standard garden hose thread. We suggest you carry two lengths of hose. This way you have the ability to reach hookups further away than normal,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

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

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

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

EVERPURE WATER FILTER (OPTIONAL)



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.

To Remove Used Cartridge:

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

To Install New Cartridge:

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

FAUCETS

Care and Cleaning

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

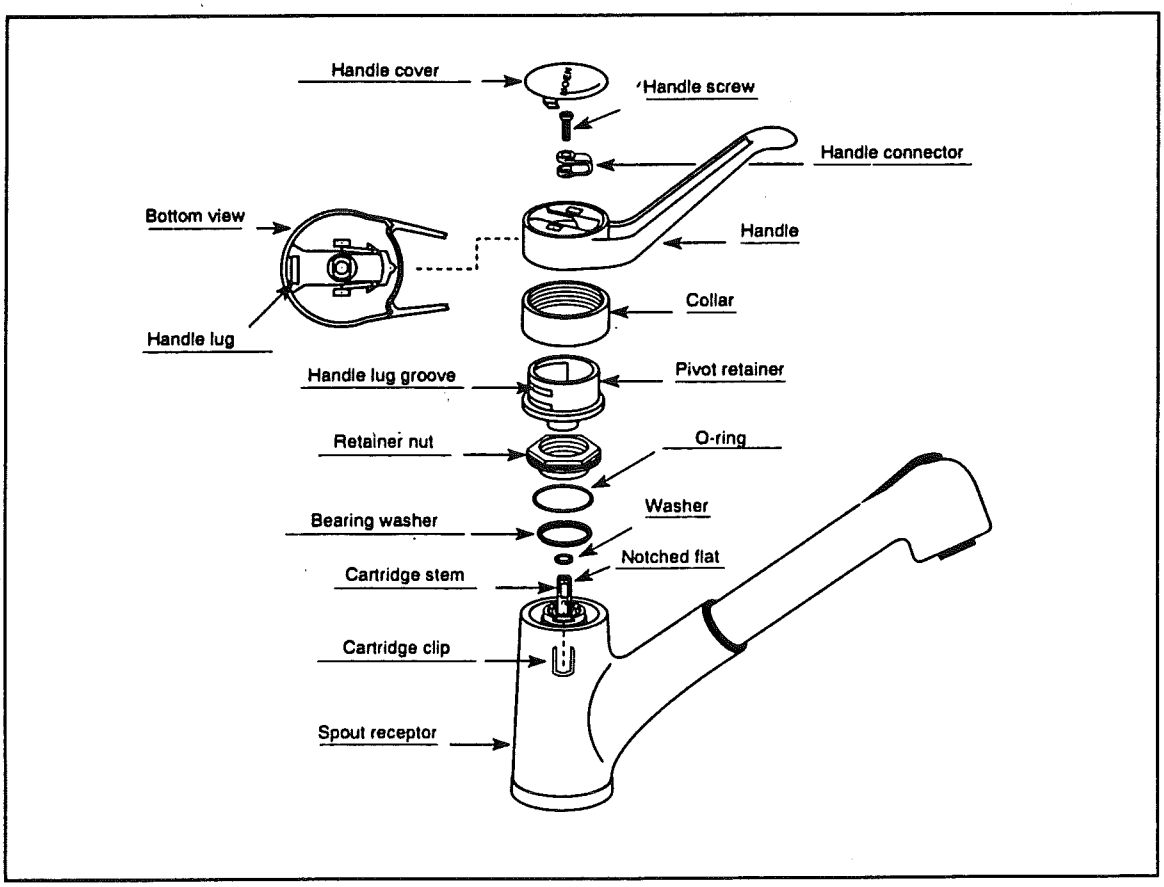
The finish on the faucets has been designed to retain its polished appearance without scouring. Stains and dirt remove easily without the use of scouring powders or abrasive polishes and cleaners. Use of such agents may cause scratches which mar the finish, and in time become dirt catchers and unattractive.

MOEN FAUCET CARTRIDGE REPLACEMENT

Disassembly:

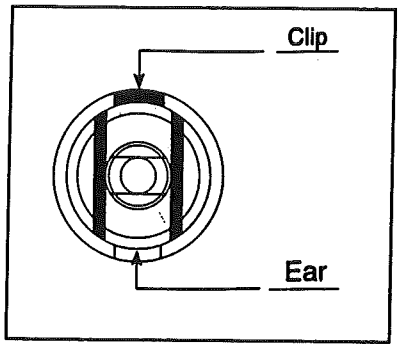
Turn OFF both hot and cold water supplies, then open faucet to relieve pressure and insure that water has been COMPLETELY shut off.

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



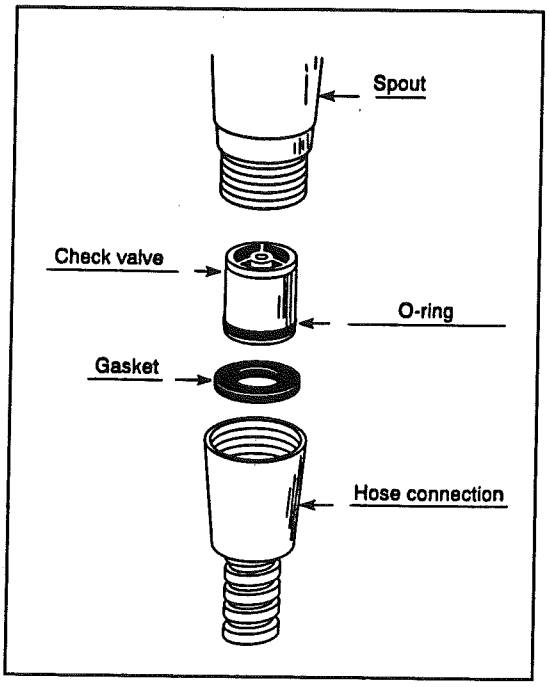
Reassembly:

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



TO REMOVE AND CLEAN CHECK VALVE:

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



DELTA LAVATORY FAUCET (OPTIONAL)

CARE:

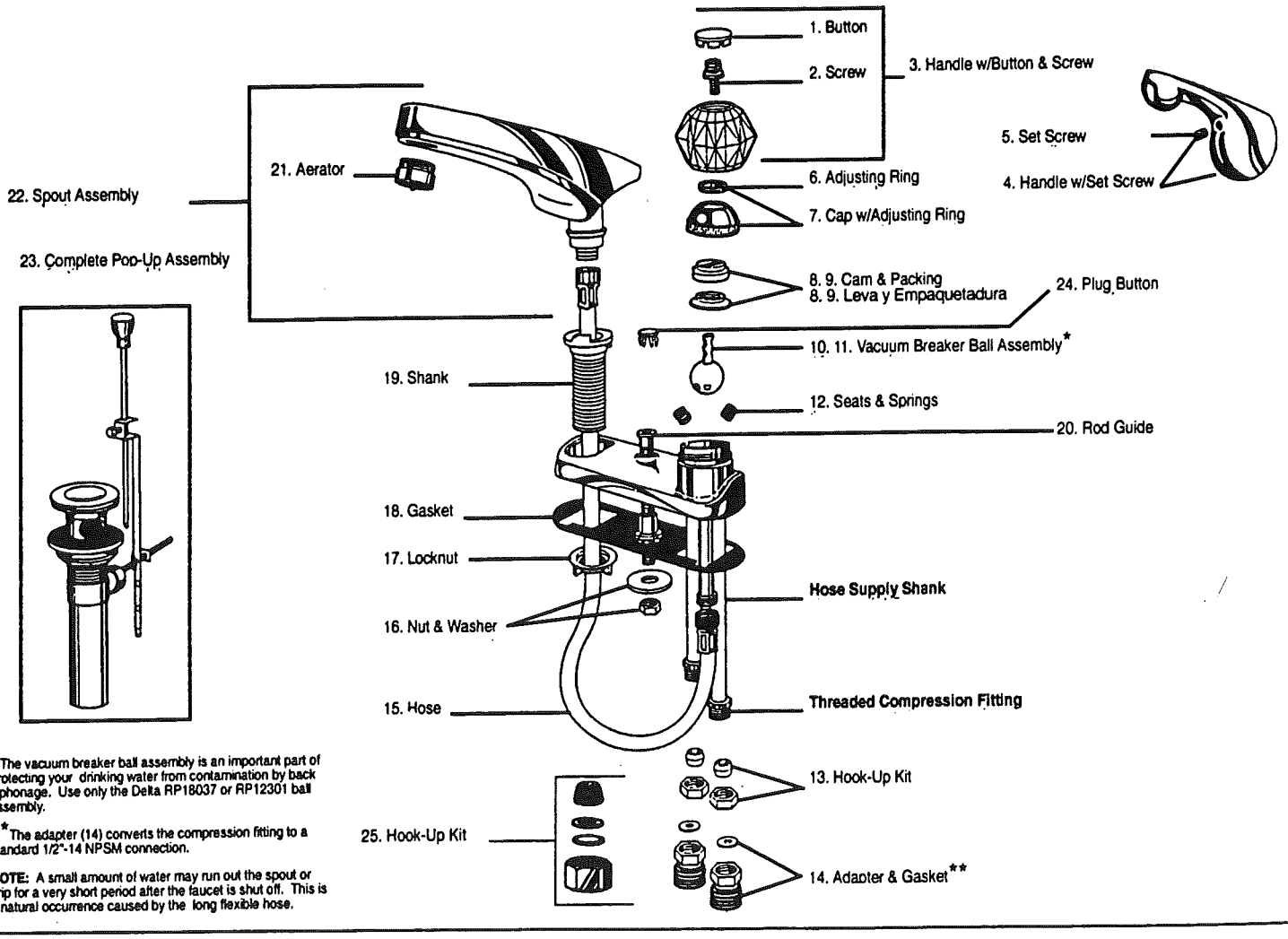
Your Delta Faucet is designed and engineered in accordance with the highest quality and performance standards. With proper care, it will give you years of trouble free service. Care should be given to the cleaning of this product. Although its finish is extremely durable, it can be damaged by harsh abrasives or polish. To clean, simply wipe gently with a damp cloth and blot dry with a soft towel.

TROUBLE SHOOTING

Condition	Remedy
Faucet leaks from under handle - DO NOT SHUT OFF WATER SUPPLIES	Remove handle and tighten adjusting ring until water no longer leaks from around stem when faucet is on and pressure is exerted to force ball assembly into socket.[1]
Faucet leaks from spout outlet — SHUT OFF WATER SUPPLIES	**For Knob Handle:** Replace Vacuum Breaker Ball Assembly — Repair Kit RP 18037 and Seats & Springs - Repair Kit RP4993.[2] **For Lever Handle:** Replace Vacuum Breaker Ball Assembly — Repair Kit RP 12301 and Seats & Springs - Repair Kit RP4993.[2]
If leak persists — SHUT OFF WATER SUPPLIES	**For Knob Handle:** Replace Vacuum Breaker Ball Assembly — Repair Kit RP 18037 and Cam Assembly - Repair Kit RP188.[2] **For Lever Handle:** Replace Vacuum Breaker Ball Assembly — Repair Kit RP 12301 and Cam Assembly - Repair Kit RP61.[2]

Helpful Hints:

1. Never tighten cap assembly to stop a leak, always tighten adjusting ring. 2. Partially unscrew adjusting ring before attempting to remove cap assembly. Always install cap assembly HANDTIGHT, then tighten adjusting ring.



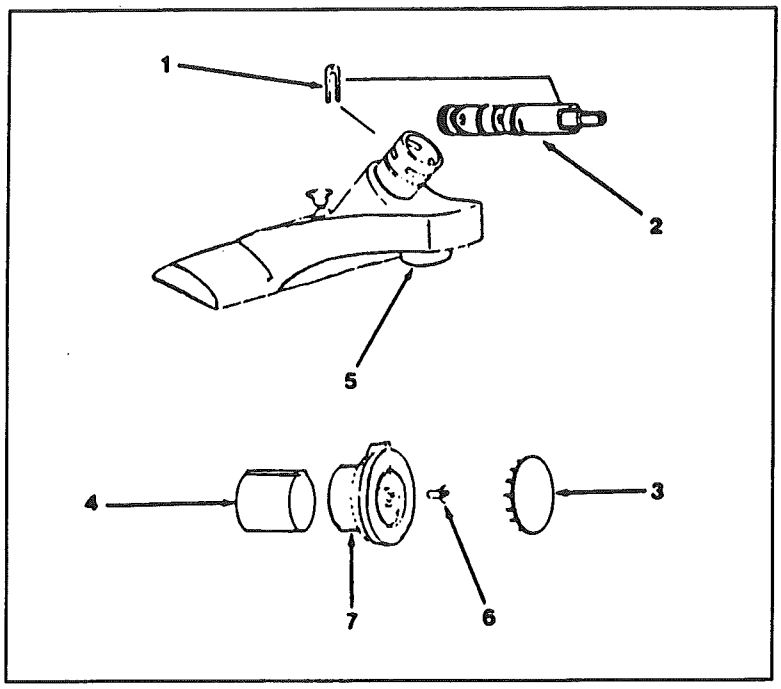
*The vacuum breaker ball assembly is an important part of protecting your drinking water from contamination by back siphonage. Use only the Delta RP18037 or RP12301 ball assembly.

**The adapter (14) converts the compression fitting to a standard 1/2"-14 NPSM connection.

NOTE: A small amount of water may run out the spout or drip for a very short period after the faucet is shut off. This is a natural occurrence caused by the long flexible hose.

MOEN LAVATORY FAUCET

1. Retainer Clip (Knob Handles)
2. Valve Cartridge
3. Handle Cover (Knob Handles)
4. Stop Tube (Knob Handles)
5. Aerator - Male Thread
6. Handle Screw (Knob Handles)
7. Handle Assembly (Knob Handles)



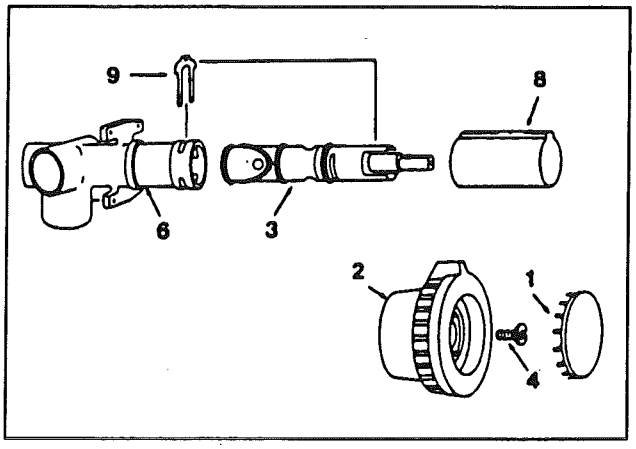
Removal and Replacement

1. Disconnect city water supply.
2. Shut off pump switch.
3. Open faucets.
4. Open drain valves.
5. Remove hose clamps holding plastic hot and cold water lines to copper pigtails on faucet. Remove lines.
6. Form lines from faucet so they are paralleled with one another.
7. Remove nuts and washers securing faucet in place.
8. Remove faucet by lifting it from its position.
9. To replace, reverse above procedure.
10. Check for leaks.

NOTE: See end of faucet section for removal of cartridge.

MOEN SHOWER MIXING VALVE ASSEMBLY

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



Removal and Replacement

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

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

LAVATORY FAUCET AND SHOWER MIXING VALVE CARTRIDGE REMOVAL

Shut off water pressure for entire system.

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

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

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

Removal and Replacement

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

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

STORAGE AND WINTERIZING

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

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

Living Area

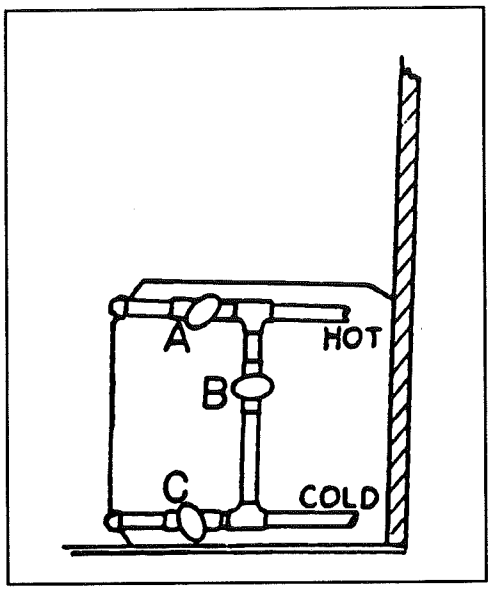
The main consideration in winterizing is to guard against freezing damage to the hot and cold water systems, the waste drain system (including the traps), the waste holding tanks, the water heater and the batteries. To completely winterize your motorhome follow this procedure:

1. Level the motorhome from side to side and front to rear. Open all faucets.
2. Turn the water pump switch to the OFF position.
3. Open the two line drain valves in your utility compartment as well as the exterior water service faucet. Open water tank drain valve in curbside rear storage compartment. Remove plug or open petcock on face of water heater.
4. The toilet water valve should be left in open position while draining water.
5. While the water is draining from the system, depress the button on hand spray heads and drain all the water. Unscrew the heads on spray units and store. Don't forget the exterior water service.
6. After the water has stopped running from the drain lines, apply at least 60 lbs. of air pressure at the city water inlet. Be sure the toilet valve and all drain valves and faucets are open and pump outlet hose is disconnected. This can be accomplished at a service station and will force any remaining water from the water heater and remove any water which may be trapped in low areas.
7. Pour a cup of non-toxic antifreeze into the lavatory, sink, and tub drains to prevent freezing water in traps.
8. Be sure to open the waste holding tank drain valves, and drain and flush the tanks thoroughly. (This is very important, as the sewage in the tank, if frozen, could seriously damage the tank.)
9. Remove water filter canister and dump.
10. Remove the batteries from your motorhome and store in a cool dry place where there is no danger of freezing. It is very important for optimum life of your battery to check it periodically and to keep it fully charged. This is especially true in winter months, when the temperature may drop below freezing.

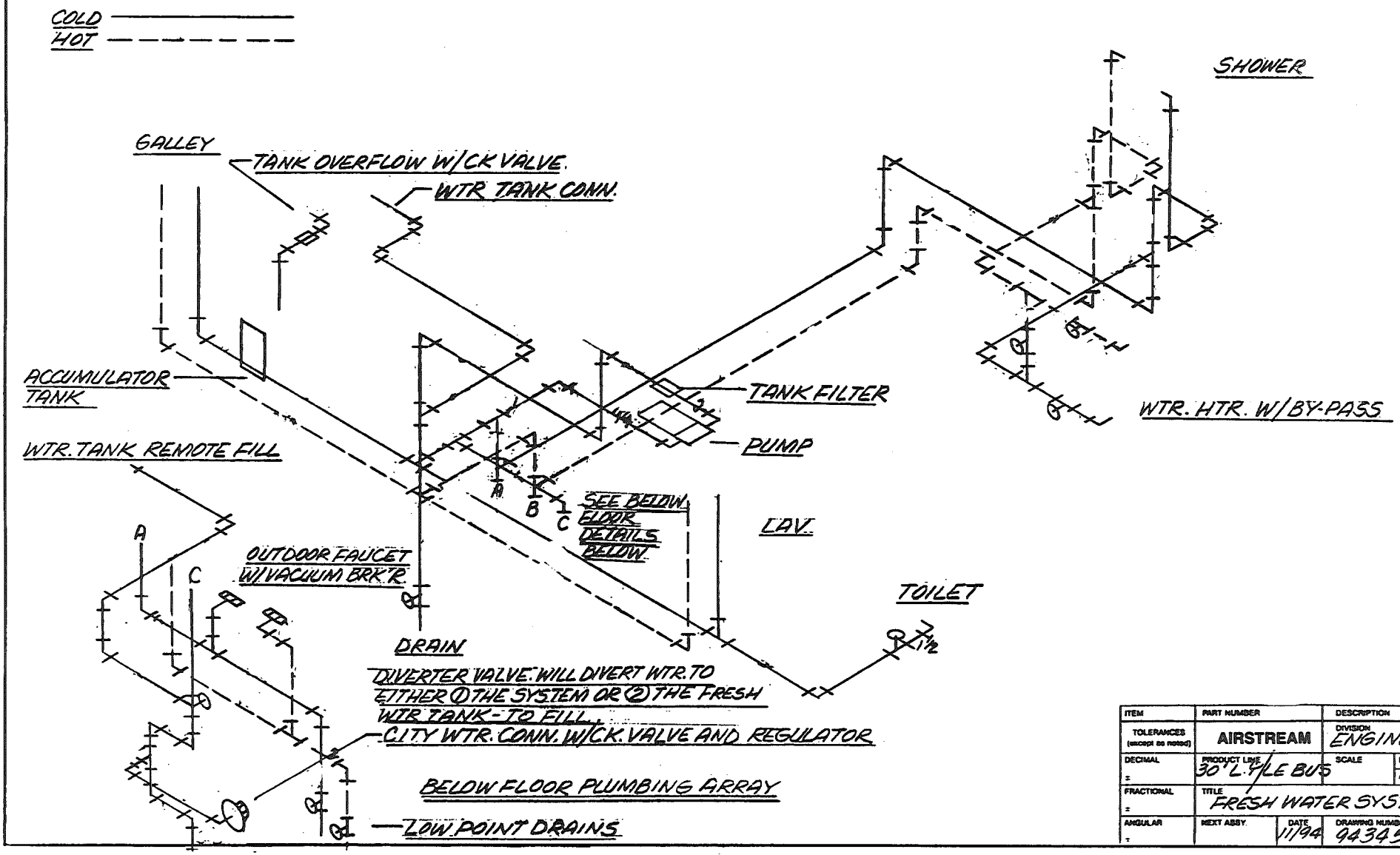
    Please refer to the battery section for more information on battery maintenance.
11. Remove any items (food, cosmetics, etc.) from the interior that might be damaged by freezing, or might damage the motorhome if containers break.

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

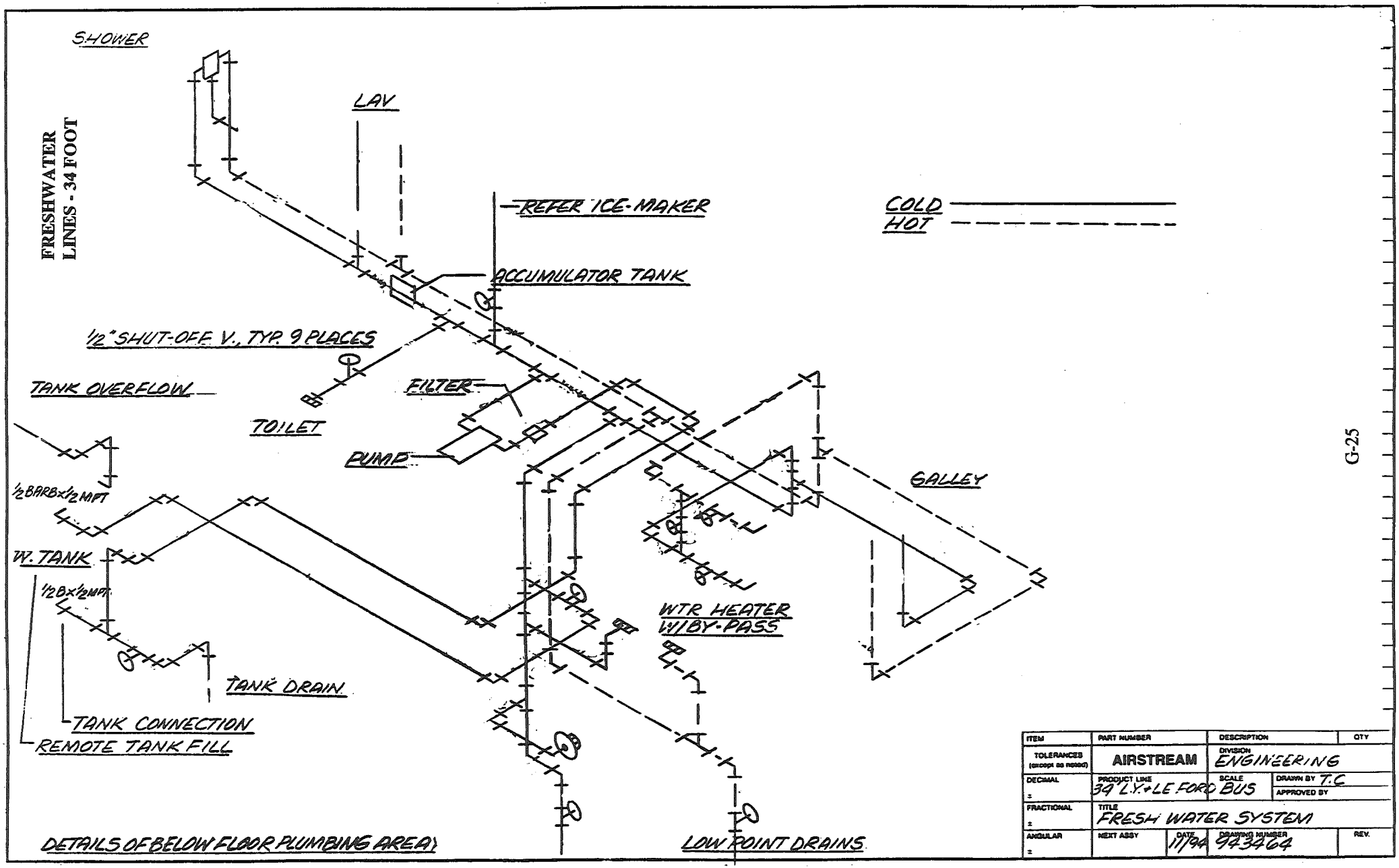
1. Reconnect all lines except the hose to the pump inlet port. Close all drain valves (See Step 3).
2. Turn bypass valves to bypass position. (See Valve Manual).
3. Attach a length of hose to the pump inlet port. This piece of hose should be long enough for the free end to be inserted into and reach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



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



ITEM	PART NUMBER		DESCRIPTION	QTY
TOLERANCES (except as noted)	AIRSTREAM		DIVISION ENGINEERING	
DECIMAL ±	PRODUCT LINE 30' L.Y/LE BUS		SCALE	DRAWN BY TC APPROVED BY
FRACTIONAL ±	TITLE FRESH WATER SYSTEM			
ANGULAR °	NEXT ASSY.	DATE 11/94	DRAWING NUMBER 943459	REV.

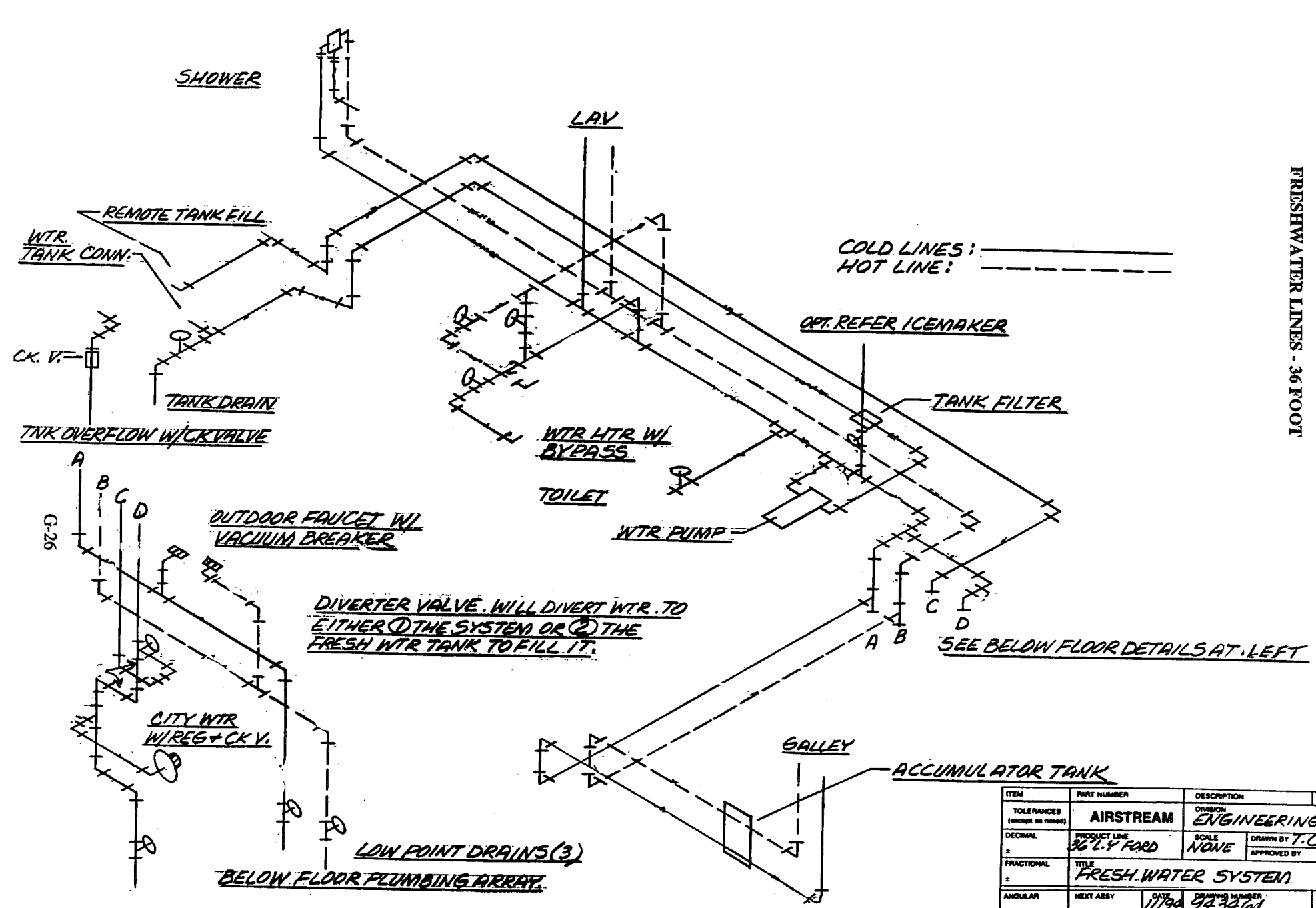


FRESHWATER LINES - 34 FOOT

DETAILS OF BELOW FLOOR PLUMBING AREA)

G-25

ITEM	PART NUMBER	DESCRIPTION	QTY
TOLERANCES (except as noted)	AIRSTREAM	DIVISION ENGINEERING	
DECIMAL ±	PRODUCT LINE 34' L.Y. • LE FORD BUS	SCALE	DRAWN BY T.C. / APPROVED BY
FRACTIONAL ±	TITLE FRESH WATER SYSTEM		
ANGULAR ±	NEXT ASSY	DATE 11/94	DRAWING NUMBER 943464 REV.



ITEM	PART NUMBER		DESCRIPTION	QTY
TOLERANCES (except as noted)	AIRSTREAM		DIVISION ENGINEERING	
DECIMAL ±	PRODUCT LINE 36' L.Y FORD		SCALE NONE	DRAWN BY T.C.
FRACTIONAL ±	TITLE FRESH WATER SYSTEM			APPROVED BY
ANGULAR ±	NEXT ASSY	DATE 11/94	DRAWING NUMBER 943461	REV.

FRESHWATER LINES - 36 FOOT

DRAIN AND WASTE SYSTEM

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

Monitor Panel

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

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

When Parked and Connected to Sewer Outlet

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

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

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

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

Drain Systems Cleaning

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

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

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

TOILET

Manufacturer:

Sealand Technology, Inc.
P.O. Box 38
Fourth Street
Big Prairie, Ohio 44611
Phone: 1-800-321-9886
In Ohio 216-496-3211

Traveler Model 510/511

How to Use

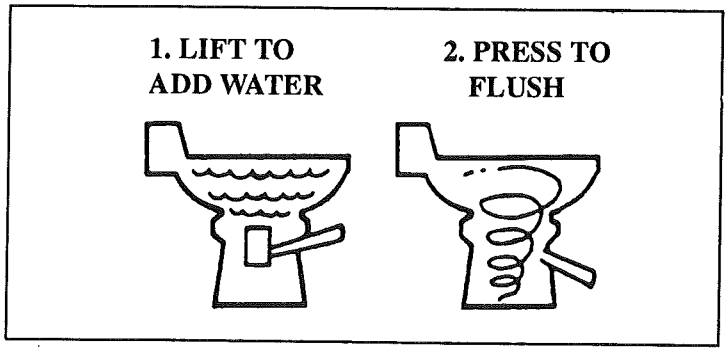
1. To add water to the toilet before using, lift or raise the flush lever until desired water level is reached. Generally more water is required only when flushing solids.

2. To flush toilet, push lever all the way down until sewage leaves toilet.

3. Release flush lever.

4. A small amount of water should remain in bowl.

Note: Holding flush lever down longer than necessary results in excessive water usage. A good biodegradable tissue, available through RV dealers, is recommended.



Cleaning

The toilet should be cleaned regularly for maximum sanitation and operational efficiency.

Clean the toilet bowl with a mild bathroom cleaner. Do not allow caustic cleaners to set in the bowl for long period of time to avoid damaging seals.

If an odor is apparent from the toilet:

1. Clean out system.

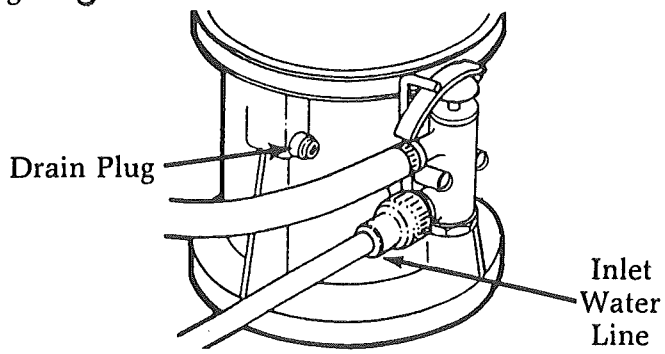
2. Add odor control deodorant in amount specified for your holding tank capacity after cleaning and every few days during use.

Winterizing

At the end of each season the toilet should be winterized for storage. The following procedure should be used:

1. Clean and flush toilet.
2. Shut off water supply, then remove inlet water line.
3. Remove drain plug. (See Fig. 5)

Figure 5



4. Remove water line and clean screen. (Refer to Fig. 6 in Troubleshooting Section.)
5. Depress flush lever until all water drains from the system.

Preparing for Summer Use

To prepare the toilet for summer use, check to be sure drain plug is installed in side of toilet base. Turn on water supply and check system for leaks. Flush toilet and check for leaks. Repair any leaks as necessary. Toilet is now ready for use.

Parts Description

FIGURE 6

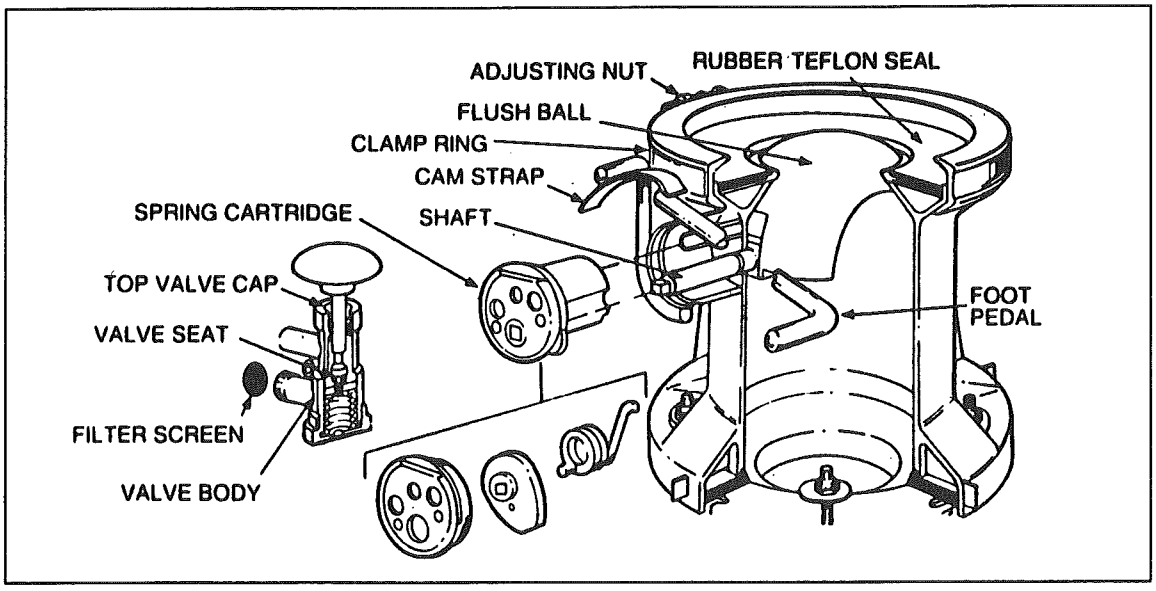
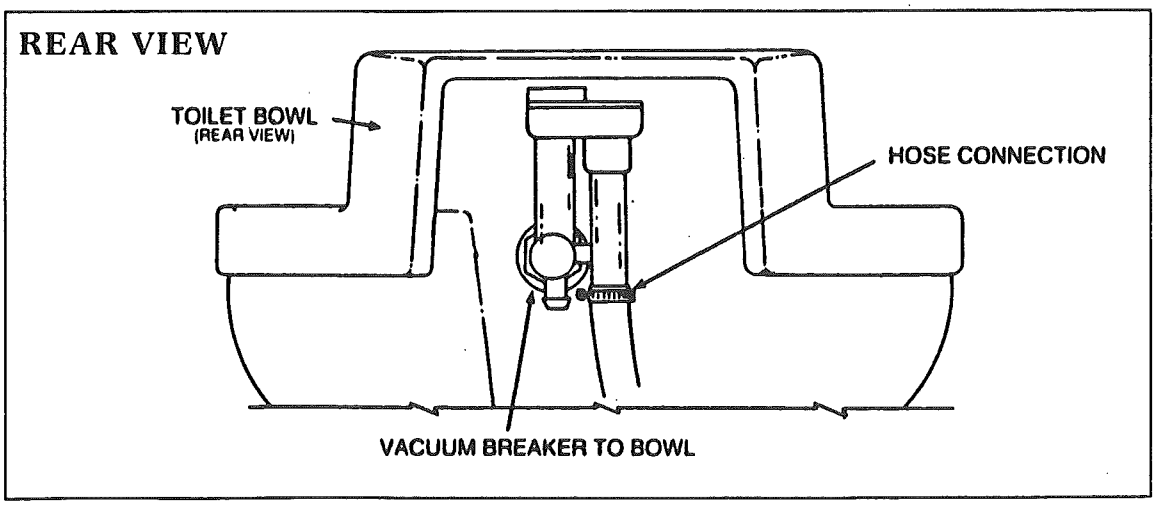


FIGURE 7



Trouble Shooting Guide

PROBLEM:	Water will not stay in bowl. (See Fig. 6)
CAUSE/ REMEDY:	Loose clamp ring. Tighten clamp ring adjusting nut.
	Improper seal around flush ball due to dirt or debris on underside of teflon ball seal. Inspect flush ball and under side of teflon seal for foreign objects.
	Worn or damaged flush ball. Replace flush ball.
	Cracked half clamps. Replace half clamps.
PROBLEM:	Plastic flush ball will not close completely. (See Fig. 6)
CAUSE/ REMEDY:	Clamp ring over tightened causing too much tension on seal and flush ball. Loosen clamp ring.
	Weak or defective spring. Check spring tension by letting up on flush lever suddenly. If lever does not "snap back" replace spring, cam and plate with new spring cartridge.
	Worn or damaged flush ball or shaft. If lever "snaps back" but flush ball does not close completely, replace flush ball and shaft.
PROBLEM:	Water doesn't shut off in toilet (toilet overflows). (See Fig.6)
CAUSE/ REMEDY:	Dirt lodged in water valve seal. Disassemble and clean water valve.
	Cam strap bent down holding water valve open. Bend front of cam strap up about 1/16".
	Worn or defective water valve. Replace valve assembly.
	Worn or defective spring. Replace spring, cam and plate with new spring cartridge.
PROBLEM:	Water does not enter toilet bowl properly. (See Fig. 6)
CAUSE/ REMEDY:	Low water pressure. Check incoming water pressure.
	Water valve clogged. Remove and clean filter screen located on inlet of water valve.
	Water valve defective. Replace water valve.
	Worn or defective flush lever. Replace flush lever.
	Check vacuum breaker for leakage. Replace vacuum breaker.
	Rim wash holes plugged. Clean holes.
PROBLEM:	Water leaking from water valve. (See Fig. 6)
CAUSE/ REMEDY:	Loose connection. Tighten bottom cap, inlet fitting and outlet hose clamp.
	Worn or defective water valve. Replace water valve.
	Stripped threads. Replace water valve.
	Seal worn or missing. Replace water valve.
	Valve body cracked. Replace water valve.

PROBLEM: Water leaking from bottom of toilet base. (See Fig. 6)
CAUSE/ Toilet loose. Tighten toilet mounting bolts.
REMEDY: Worn or defective toilet mounting floor seal. Replace sponge rubber seal between floor flange and toilet base.

Worn or defective base. Replace base assembly.

Worn or defective floor flange. Replace floor flange.

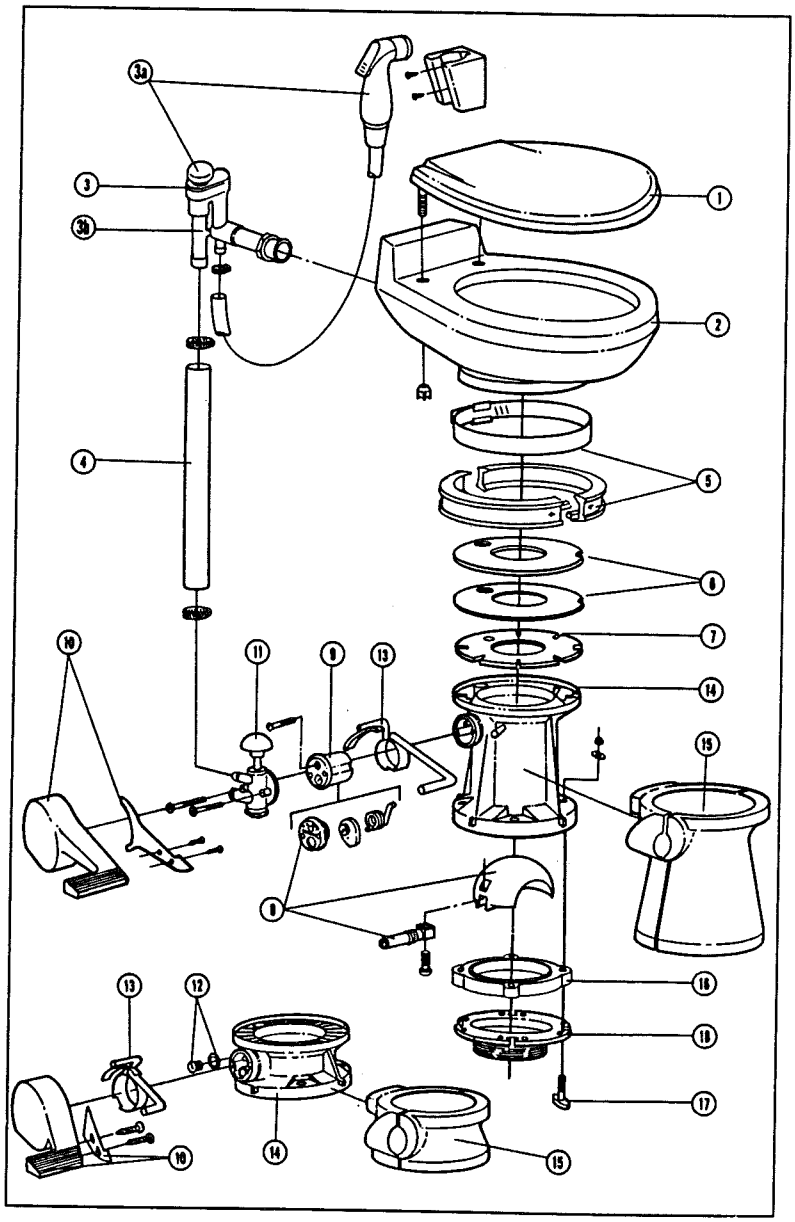
PROBLEM: Water leaking from rear of toilet bowl. (See Fig. 7)
CAUSE/ Loose hose connection. Tighten hose connections.
REMEDY: Loose vacuum breaker. Tighten vacuum breaker to bowl connection.

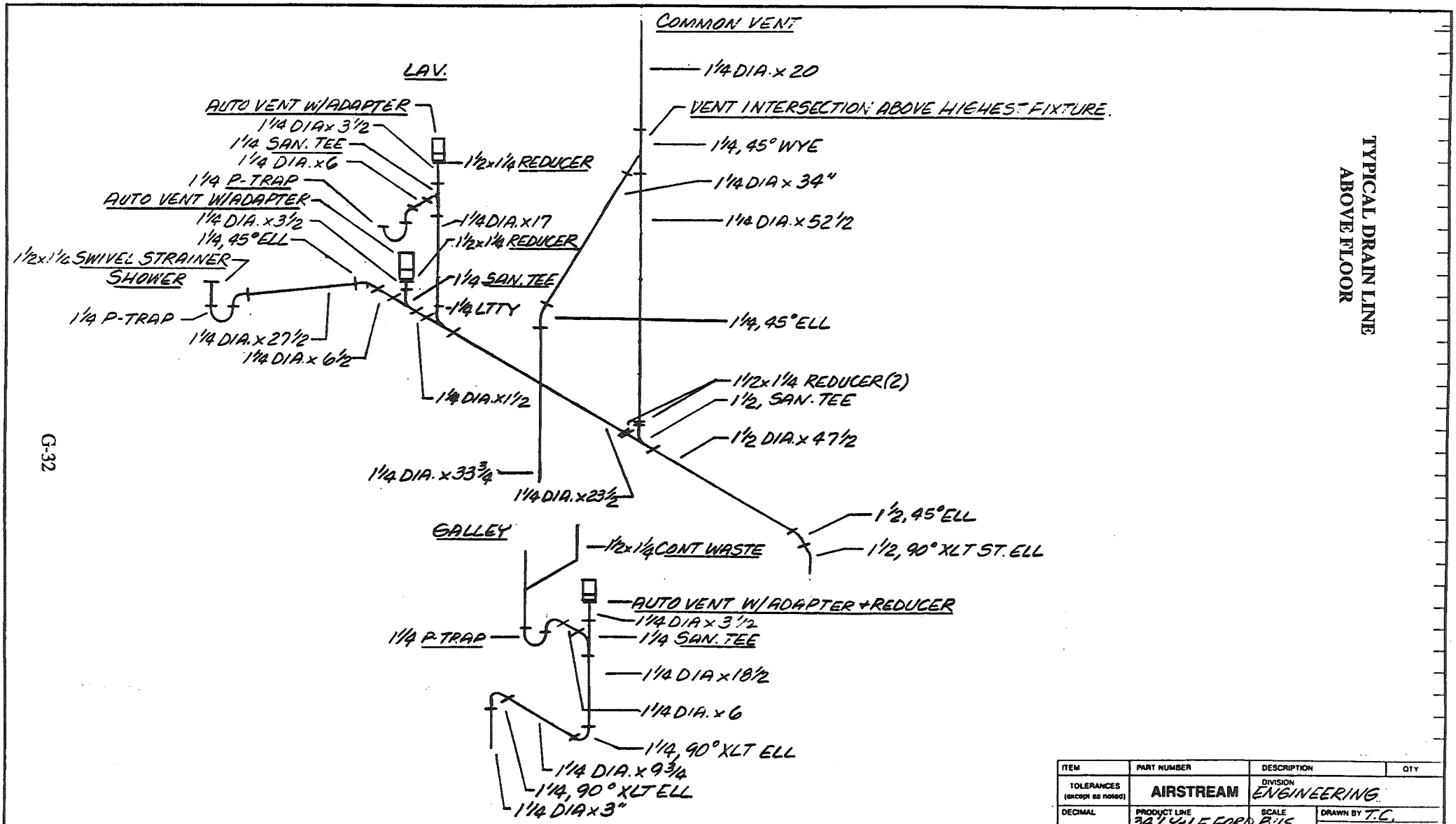
Worn or defective vacuum breaker. Replace vacuum breaker assembly.

Cracked or defective toilet bowl. Replace toilet bowl.

Replacement Parts List
(Models 510/511)

Item No.	Part No. 510	511	Description
1	340816		Seat Assembly, Bone
2	310081		China Bowl, Bone
3	318065		Vacuum Breaker Kit
3a	319055		Vacuum Breaker w/Hand Spray Kit
	340683		Hand Spray Unit w/Hose
3b	230325		Vacuum Breaker Assembly w/Diverter Valve
4	340177		Supply Hose, Bone
5	310048		Ring & Half clamp Kit, Bone
6	316140		Teflon and Rubber Seal Kit
7	346405		Seal Support Plate (tall base only)
8	318162		Ball, Shaft, and Cartridge Kit
9	236096		Spring Cartridge Assembly
10	310115	310118	Pedal Cover Kit, Bone
11	314349		Water Valve Kit
12	316142		Drain Plug and Cap w/Seals Kit (Base Rear)
13	340873	340825	Flush Lever
14	310121	310124	Base Kit, Bone
15	310112	310109	Pedestal Cover Kit, Bone
16	341549		Floor Flange Seal
17	310064		Floor Bolt Kit



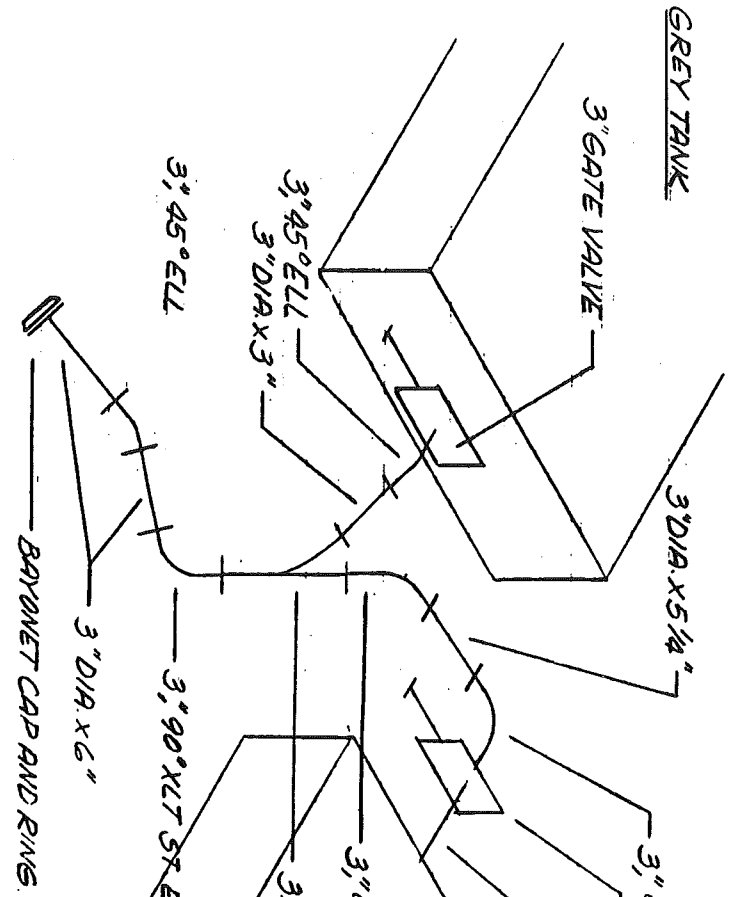


TYPICAL DRAIN LINE
ABOVE FLOOR

G-32

ITEM	PART NUMBER	DESCRIPTION	QTY
TOLERANCES (except as noted)	AIRSTREAM	DIVISION ENGINEERING	
DECIMAL =	PRODUCT LINE 34' LY-LE FORD B.U.S	SCALE	DRAWN BY T.C. / APPROVED BY
FRACTIONAL =	TITLE ABOVE FLOOR DWV		
ANGULAR =	NEXT ASSY	DATE 11/94	DRAWING NUMBER 943465 / REV.

DRAIN LINE, BELOW FLOOR



ITEM	PART NUMBER	DESCRIPTION	QTY
TOLERANCES (except as noted)	AIRSTREAM	DIVISION ENGINEERING	
DECIMAL	PRODUCT LINE ALL FORD MH'S	SCALE	DRAWN BY T.C.
± FRACTIONAL	TITLE BELOW FLOOR DWV		APPROVED BY
± ANGULAR	NEXT ASSY	DATE 11/94	DRAWING NUMBER 99-3425
±			REV

NOTES

ELECTRICAL SYSTEM

12 VOLT SYSTEM

BATTERIES

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

Engine Battery

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

Coach Batteries

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

Auxiliary Battery Switch

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

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

Interior Lights

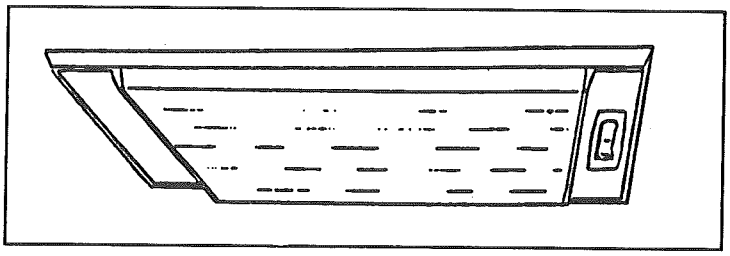
Many interior lights have been included in your motorhome to give you almost infinite variable light intensity.

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

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

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

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



The ceiling and wardrobe light lenses are removed by squeezing the sides of the lens in until they clear the frame. In cold weather it is helpful to leave the light on for a while to soften the plastic and avoid cracking. Incandescent bulbs are removed by depressing and turning to the left about 1/4 turn. Fluorescent bulbs are removed by turning in either direction.

12 Volt Operation

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

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

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

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

Optional solar panels that work to keep the batteries charge range anywhere from a battery maintaining system (10 watt) to a series of 53 watt panels that produce serious power. More information is provided further back in this 12 volt section and a separate pamphlet is loose in the silver key notebook.

There are two sets of 12 volt fuses and breakers in your motorhome. The main interior circuits are in the arm rest of the coach directly behind the drivers seat. The brightly colored fuses pull straight out from the face of the panel. Replacement fuses are available at automotive stores and most service stations. On the panel covering the fuses is a diagram showing the function of each fuse or circuit breaker.

The second set of fuses are the ones provided by the chassis manufacturer. Chevrolets are usually under the dash. Ford has fuses both under the hood and to the right of the engine cover next to the glove box.

Basic 12V Wiring

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

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

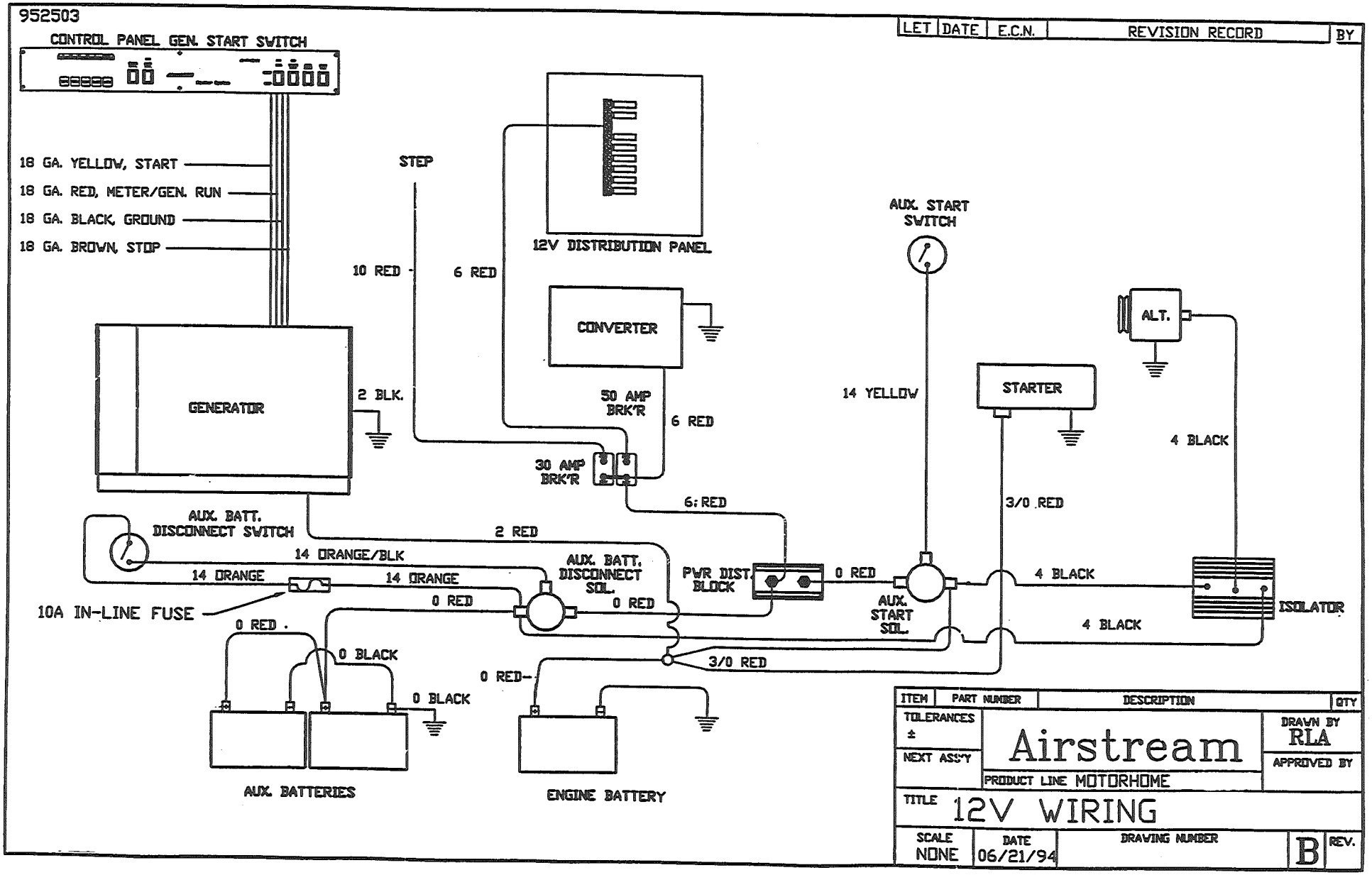
On the following pages are 12-volt wiring diagrams. The first drawing simply labeled "12V Wiring" will probably be the most useful. It shows how the power from the batteries reaches the main components.

The coach batteries, *12 volt breakers and isolator are all located just behind the interior engine cover. The engine battery is outside under the front hood.

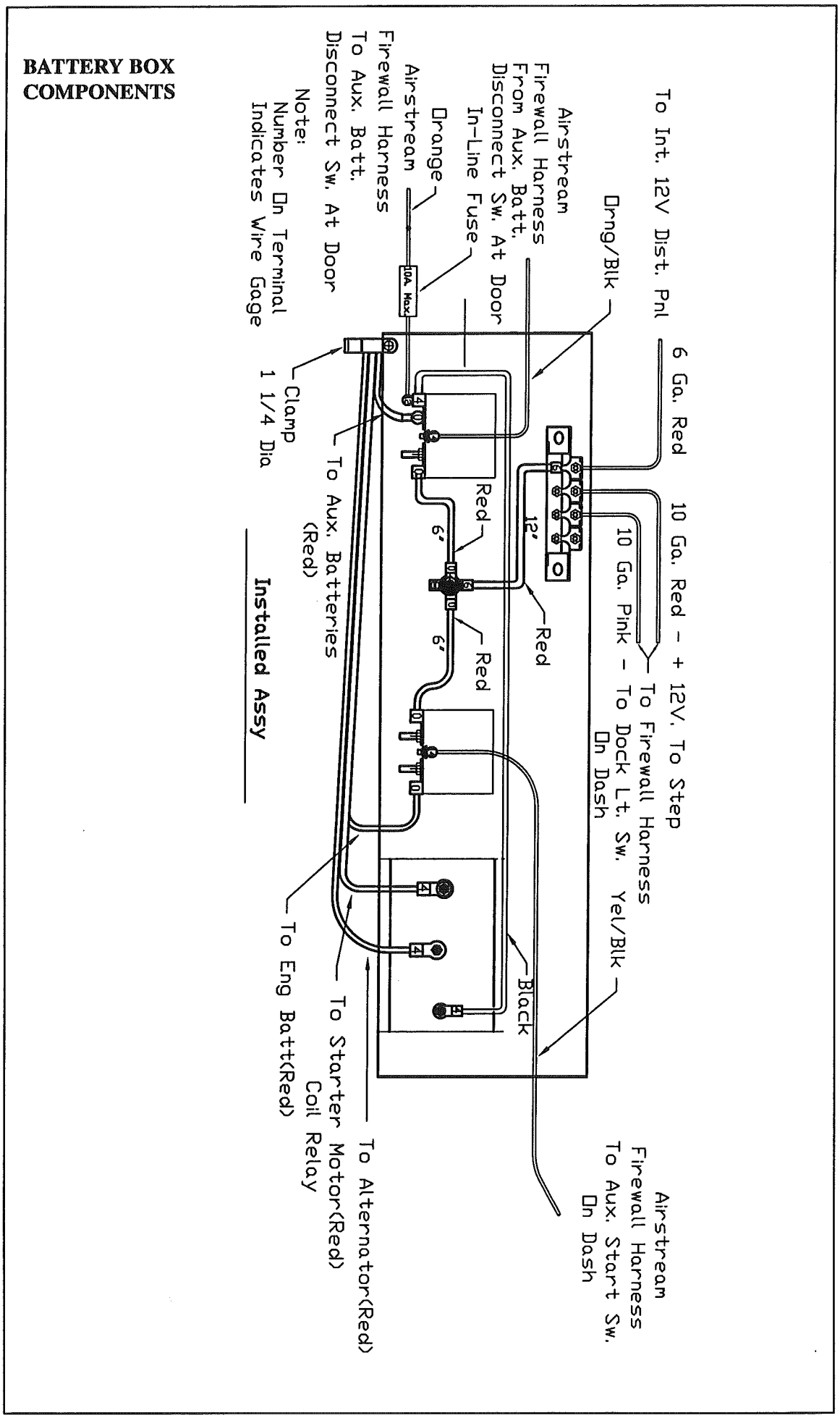
*In years past, most 12-volt circuit breakers were automatic - if they kicked out after a brief period of time they would reset themselves. Recently the automatic breakers have all been replaced with the type that must be manually reset. The reset button is in the end of the breaker and is depressed to reset. The button is small and in many cases directly under a wire so they can be difficult to see.

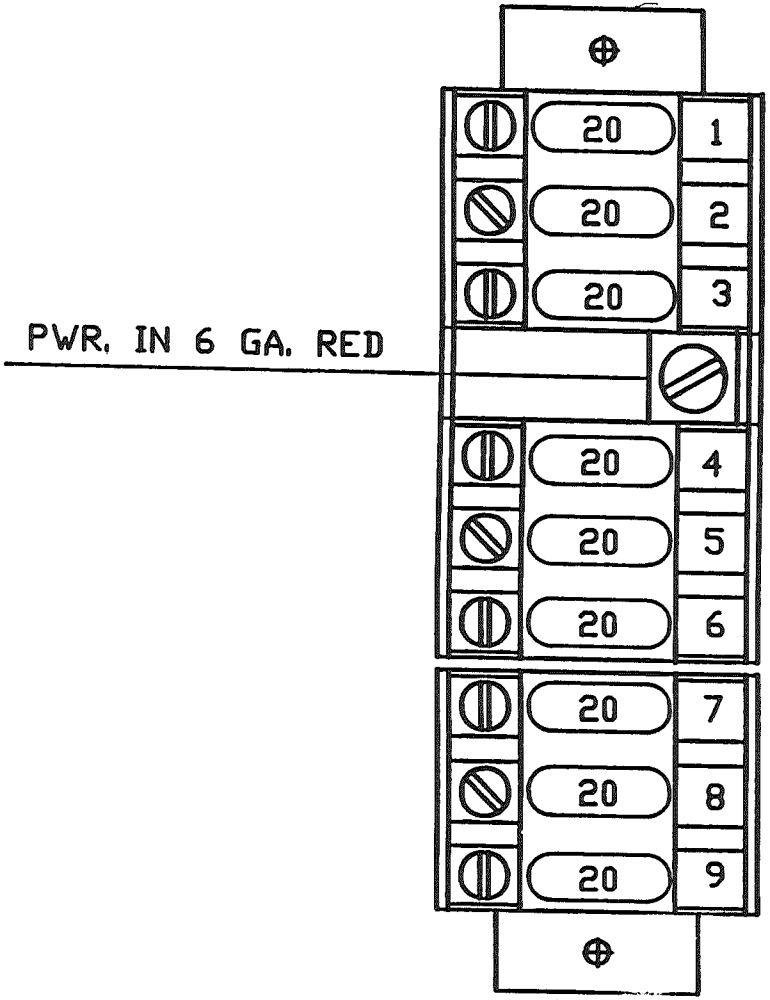
12V WIRING DIAGRAMS

- 12 volt wiring main
- 12 volt battery box
- 12 volt fuse panel, Airstream
- 12 volt calculations
- Harness, body interior
- Harness, ceiling
- Harness, body, chassis
- Harness, firewall
- Harness, A pillar
- Harness, body, upper
- Harness, wiper/washer
- Harness, dash switches
- Harness, dash lights
- Harness, head lights
- Harness, clearance lights rear
- Harness, tail lights
- Harness, mirrors
- Coax Connections


952503
LET | DATE | E.C.N. | REVISION RECORD | BY
CONTROL PANEL GEN. START SWITCH
18 GA. YELLOW, START
18 GA. RED, METER/GEN. RUN
18 GA. BLACK, GROUND
18 GA. BROWN, STOP
STEP
10 RED
6 RED
12V DISTRIBUTION PANEL
AUX. START SWITCH
CONVERTER
ALT.
GENERATOR
2 BLK.
50 AMP BRK'R
6 RED
14 YELLOW
STARTER
4 BLACK
30 AMP BRK'R
6 RED
3/0 RED
AUX. BATT. DISCONNECT SWITCH
2 RED
14 ORANGE/BLK
AUX. BATT. DISCONNECT SOL.
PWR DIST. BLOCK
0 RED
4 BLACK
14 ORANGE
14 ORANGE
10A IN-LINE FUSE
0 RED
0 RED
AUX. START SOL.
ISOLATOR
0 RED
4 BLACK
0 BLACK
3/0 RED
0 RED
0 BLACK
AUX. BATTERIES
ENGINE BATTERY
ITEM | PART NUMBER | DESCRIPTION | QTY
TOLERANCES ±
NEXT ASS'Y
Airstream
PRODUCT LINE MOTORHOME
DRAWN BY RLA
APPROVED BY
TITLE 12V WIRING
SCALE NONE
DATE 06/21/94
DRAWING NUMBER
B
REV.

BATTERY BOX COMPONENTS





FUSE POSTION:

#1 CIR. 7, 12 GA. ORANGE
#2 CIR. 7, 12 GA. ORANGE
#3 CIR. 1, 12 GA. PURPLE
#4 CIR. 2, 12 GA. YELLOW
#5 CIR. 4, 12 GA. BROWN
#6 CIR. 5, 12 GA. BLUE
#7 CIR. 6, 12 GA. RED
#8 CIR. 16, 12 GA. BLACK
#9 CIR. 9, 12 GA. GREEN

FOR INDIVIDUAL CIRCUIT DETAILS
SEE 12V. CALCULATION SHEETS.

USAGE: 360 A/S MH., 360 A/S PUSHER
33' L/Y MH., 36' L/Y MH.,
34' L/Y PUSHER.

ITEM	PART NUMBER	DESCRIPTION	QTY
TOLERANCES ±		Airstream	DRAWN BY R.L.A.
NEXT ASS'Y		PRODUCT LINE A/S, L/Y, MH'S.	APPROVED BY
TITLE	12V. FUSE PANEL		
SCALE NONE	DATE 10/21/93	DRAWING NUMBER 952456	A REV.

AIRSTREAM INC., 12 V. CALCULATIONS

30' S.B. LAND YACHT/LE FORD BUS

Circuit 1, 20 Amp. Fuse, 12 Ga. Purple

(2) Bedroom Wall Lamps	6.00	Amps.
Bedroom Ceiling Light	2.10	
Bedroom T.V.	5.00	
Total	**13.10**	**Amps.**

Circuit 2, 20 Amp. Fuse, 12 Ga. Yellow

Bath Overhead Fluor. Lt.	0.90	Amps.
Electronic Ign. W/Htr.	1.00	
Bath Fan	2.90	
Total	**4.80**	**Amps.**

Circuit 3, Not Used

Circuit 4, 20 Amp. Fuse, 12 Ga. Brown

(3) Aisle Lights	1.20	Amps
Radio	5.00	
Underhood Light	1.44	
Galley Overhead Fluor. Lt.	0.90	
Total	**8.54**	**Amps.**

Circuit 5, 20 Amp. Fuse, 12 Ga. Blue

Cocktail Chair Overhead	1.44	Amps.
TV Booster	0.00	
3-Bulb Lounge Light	3.40	
3-Bulb Dinette Light	3.40	
"Fantastic" Ceiling Fan	3.30	
Total	**11.54**	**Amps.**

Circuit 6, 20 Amp. Fuse, 12 Ga. Red

(8) Compartment Lights	8.0	Amps.
Furnace	5.40	
Total	**13.40**	**Amps.**

Circuit 7, 20 Amp. Fuse, 12 Ga. Orange

Refer Light	1.20	Amps.

Circuit 8, Not Used

Circuit 9, 20 Amp. Fuse, 12 Ga. Green

Range Fan and Light	3.30	Amps.
Oven Light	1.00	
Water Pump	7.00	
Total	**11.30**	**Amps.**

Circuit 16, 20 Amp. Fuse, 12 Ga. Black

Step Light	1.00	Amps.
Patio Light	1.00	
(4) Ceiling Fluorescent Lts.	11.52	
Total	**13.52**	**Amps.**

AIRSTREAM INC., 12 V. CALCULATIONS

34' S.B. LAND YACHT/LE FORD BUS

Circuit 1, 20 Amp. Fuse, 12 Ga. Purple

(2) Bedroom Wall Lights	6.00	Amps.
Bedroom Ceiling Fluor. Light	2.10	
Bedroom T.V.	5.00	
Refer Light	1.20	
Total	**14.30**	**Amps.**

Circuit 2, 20 Amp. Fuse, 12 Ga. Yellow

3-Bulb Bath Vanity Light	3.00	Amps.
Bath Ceiling Fan	2.90	
Bath Fluor. Light	.90	
Opt. 2nd Furnace	5.40	
Total	**12.20**	**Amps.**

Circuit 3, Not Used

Circuit 4, 20 Amp. Fuse, 12 Ga. Brown

Galley Overhead Fluor. Lt.	0.90	Amps.
Radio	5.00	
(3) Aisle Lights	1.20	
Underhood Light	1.44	
Total	**8.54**	**Amps.**

Circuit 5, 20 Amp. Fuse, 12 Ga. Blue

3-Bulb Lounge Light	3.40	Amps.
TV Booster	0.00	
"Fantastic" Ceiling Fan	3.30	
Total	**6.70**	**Amps.**

Circuit 6, 20 Amp. Fuse, 12 Ga. Red

(10) Compartment Lights	10.0	Amps.
Furnace	05.4	
Total	**15.4**	**Amps.**

Circuit 7, Not Used

Circuit 8, Not Used

Circuit 9, 20 Amp. Fuse, 12 Ga. Green

Range Fan and Light	3.30	Amps.
Water Pump	7.00	
Oven Light	1.00	
Total	**11.30**	**Amps.**

Circuit 16, 20 Amp. Fuse, 12 Ga. Black

Step Light	1.00	Amps.
Patio Light	1.00	
(4) Ceiling Lights	11.52	
(3 Large & 1 Small) **Total**	**13.52**	**Amps.**

AIRSTREAM INC., 12 V. CALCULATIONS
36' S.B. LAND YACHT FORD BUS

Fuse Position 1, Circuit 7, 20 Amp. Fuse, 12 Ga. Orange

Refer	9.00	Amps

Fuse Position 2, Circuit 7, 20 Amp. Fuse, 12 Ga. Orange

	9.00	Amps

Fuse Position 3, Circuit 1, 20 Amp. Fuse, 12 Ga. Purple

"Fantastic" Ceiling Fan	3.30	Amps.
Bedroom Ceiling Fluor. Light	2.10	
(2) Bedroom Wall Lights	6.00	
(2) Halogen Reading Lights	1.80	
Bedroom T.V.	5.00	
(2) Wardrobe Lights	1.40	
Total	**19.60**	**Amps.**

Fuse Position 4, Circuit 2, 20 Amp. Fuse, 12 Ga. Yellow

Water Heater Ignition	1.00	Amps.
3-Bulb Bathroom Vanity Light	3.00	
Bath Fan	2.90	
Bath Ceiling Fluor. Light	0.90	
Opt. 2nd Furnace	5.40	
Total	**13.20**	**Amps.**

Fuse Position 5, Circuit 4, 20 Amp. Fuse, 12 Ga. Brown

Galley Overhead Fluor. Light	0.90	Amps.
Radio	5.00	
(3) Aisle Lights	1.20	
Underhood Light	1.44	
Total	**8.54**	**Amps.**

Fuse Position 6, Circuit 5, 20 Amp. Fuse, 12 Ga. Blue

"Fantastic" Ceiling Fan	3.30	Amps.
3-Bulb Dinette Light	3.40	
(2) Roadside Reading Lights	1.80	
(2) Curbside Reading Lights	1.80	
Total	**10.30**	**Amps.**

Fuse Position 7, Circuit 6, 20 Amp. Fuse, 12 Ga. Red

Furnace	5.40	Amps.
(10) Compartment Lights	10.00	
Total	**15.40**	**Amps.**

Fuse Position 8, Circuit 16, 20 Amp. Fuse, 12 Ga. Black

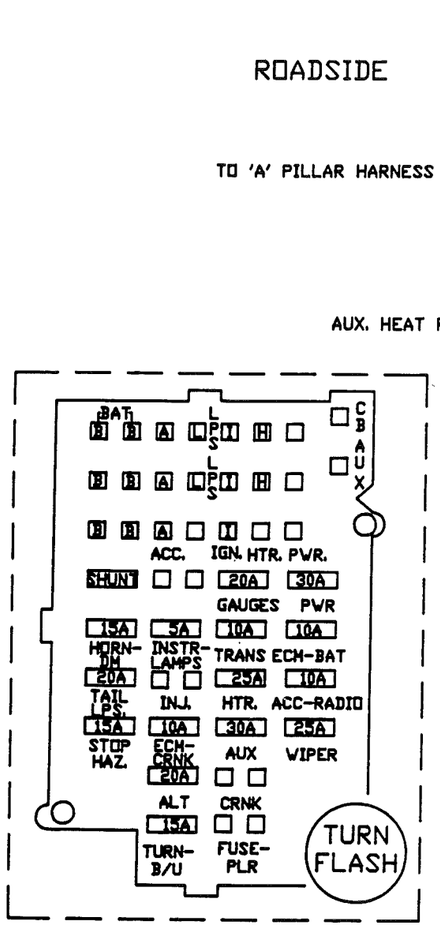
(4) Fluor. Ceiling Lights	11.52	Amps.
(3 Large & 1 Small)		
Patio Light	1.00	
Step Light	1.00	
Total	**13.52**	**Amps.**

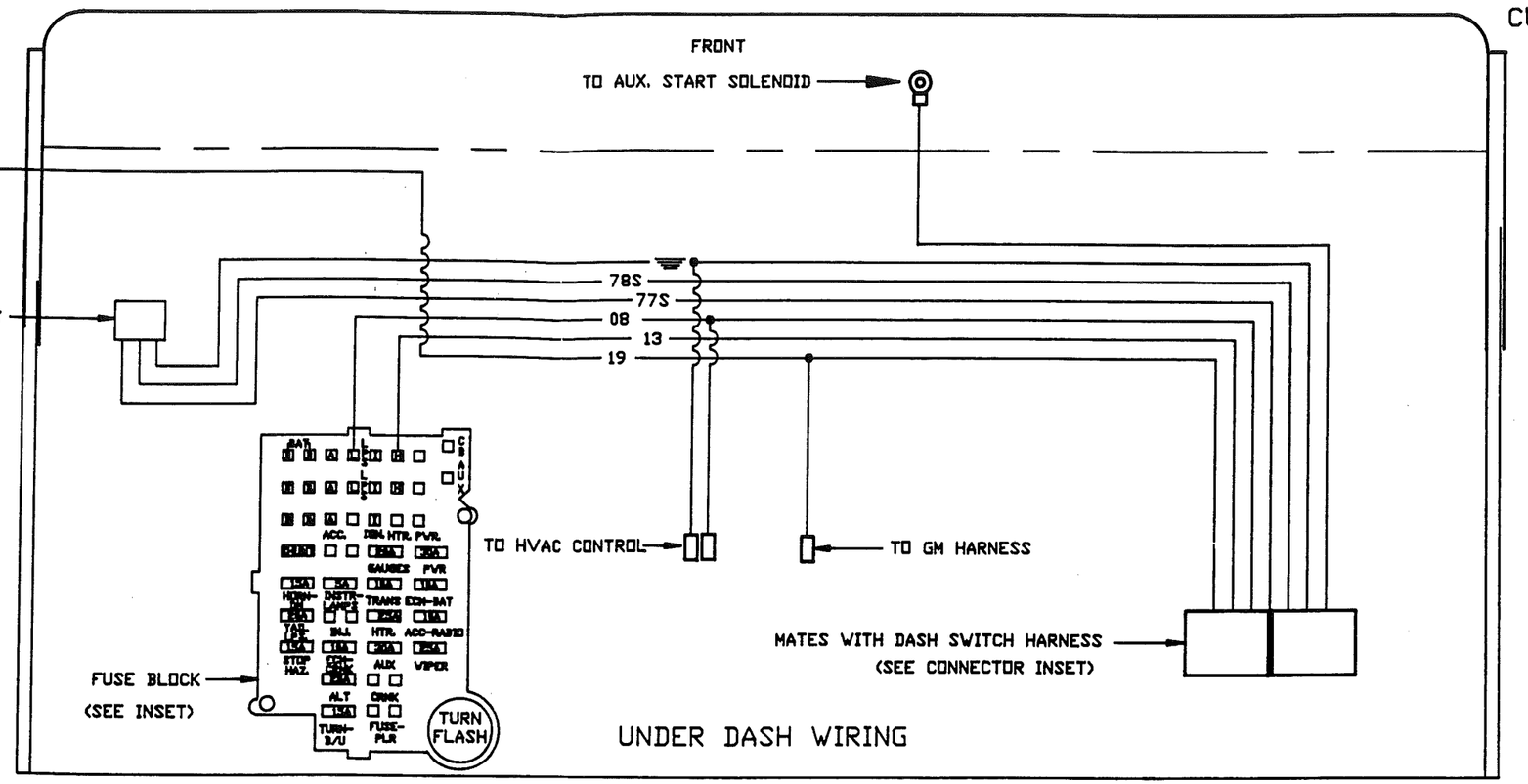
Fuse Position 9, Circuit 9, 20 Amp. Fuse, 12 Ga. Green

Oven Light	1.00	Amps.
Water Pump	7.00	
Range Fan and Light	3.30	
Total	**11.30**	**Amps.**

LET	DATE	E.C.N.	REVISION RECORD	BY
	9/92	4395	Production Release	RA

FIREWALL HARNESS (AUX. HEAT,AUX. START,I.P. LT. WIRING)

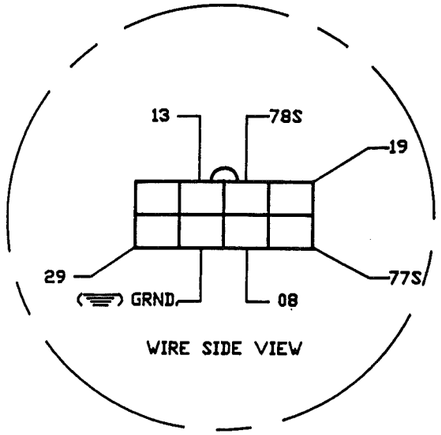




No.	Ga.	Color	Cutting Length	Function	No.	Ga.	Color	Cutting Length	Function
05	18	ORANGE	"	AUTO BAT. LEVEL	156	16	GREEN	"	DOME LT. GROUND
08	16	GRAY	"	I.P. LTS.	171	14	BLACK/WHT.	"	+12V. DOOR LOCK
3	12	ORANGE	"	CIG. LIGHTERS	240	16	ORANGE	"	DOME LT. POWER
4	12	BROWN	"	+12V.	13	12	BLUE	"	+12V. AUX. HEATER
14	14	BLUE	"	+12V.(DRIVE LTS)	77	12	RED	"	AUX. HEAT (LO)
15	12	RED	"	+12V. SEATS/WIND.	77S	12	RED/ORNG.	"	AUX. HEAT SW.(LO)
17	14	ORANGE	"	MIRRORS	78	12	ORANGE	"	AUX. HEAT (HI)
18	14	YELLOW	"	MONITOR/JACKS	78S	12	ORNG./WHT.	"	AUX. HEAT SW.(HI)
19	14	BROWN	"	CLEARANCE LTS.	117C	14	PINK	"	DOOR LOCK (SW.)
20	14	BLUE/WHT.	"	DRIVE LT. RELAY	163	16	RED/ORNG.	"	DOOR UNLOCK
22	14	RED	"	+12V. IGN.	163C	16	PURPLE	"	COMP.UNLOCK(SW.)
28	12	PURPLE	"	DOCK LTS.	CP	10	RED	"	+12V. AIR COMP.
29	14	YELLOW	"	AUX. START SOL.	38	14	YEL./RED	"	CENTER BRAKE LT.
30	14	PURPLE	"	TV	"	"	"	"	"
34	16	BLUE	"	HOOD/VISOR LT.	"	"	"	"	"
36	14	RED	"	DRIVE LT. PWR.	"	"	"	"	"
39A	10	RED	"	+12V. STEP	"	"	"	"	"
39C	16	RED	"	+12V. STEP (IGN.)	"	"	"	"	"
117	16	PINK/BLK.	"	ALL DOOR LOCK	"	"	"	"	"
163	16	RED/ORNG.	"	DOOR UNLOCK	"	"	"	"	"

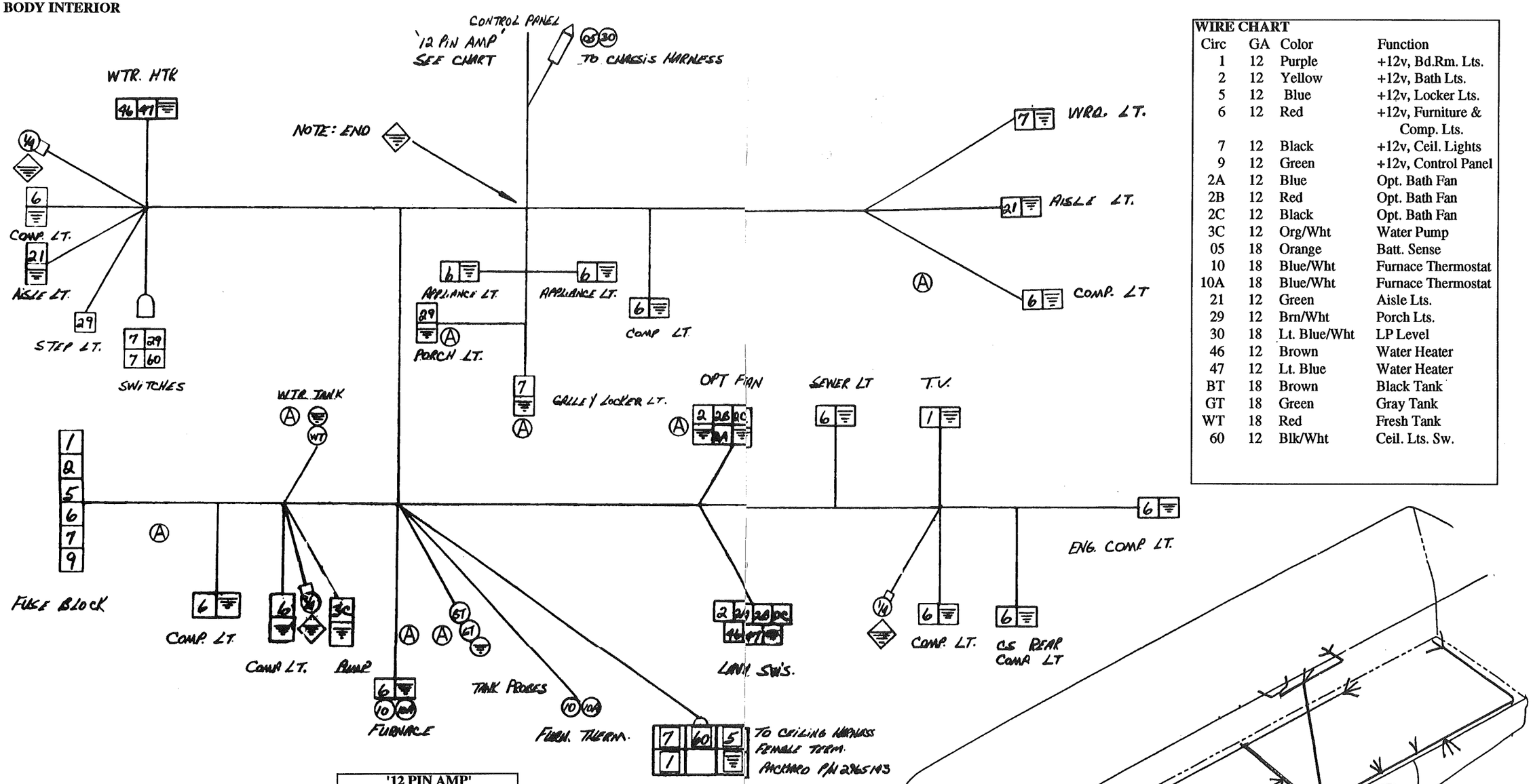
Terminals

- Bullet .180 Male
- Bullet .180 Female
- Butt Connector
- Ring .250 I.D.
- Spade .250 Female
- Spade .250 Male
- Coax Connector



ITEM	PART NUMBER	DESCRIPTION	QTY
TOLERANCES ±		Airstream	DRAWN BY RLA
NEXT ASSY		PRODUCT LINE L/Y-LEG-A/S MH'S.	APPROVED BY
TITLE 12V. LAYOUT-FIREWALL			
SCALE 1=4	DATE 09/92	DRAWING NUMBER 511012L3	REV. D

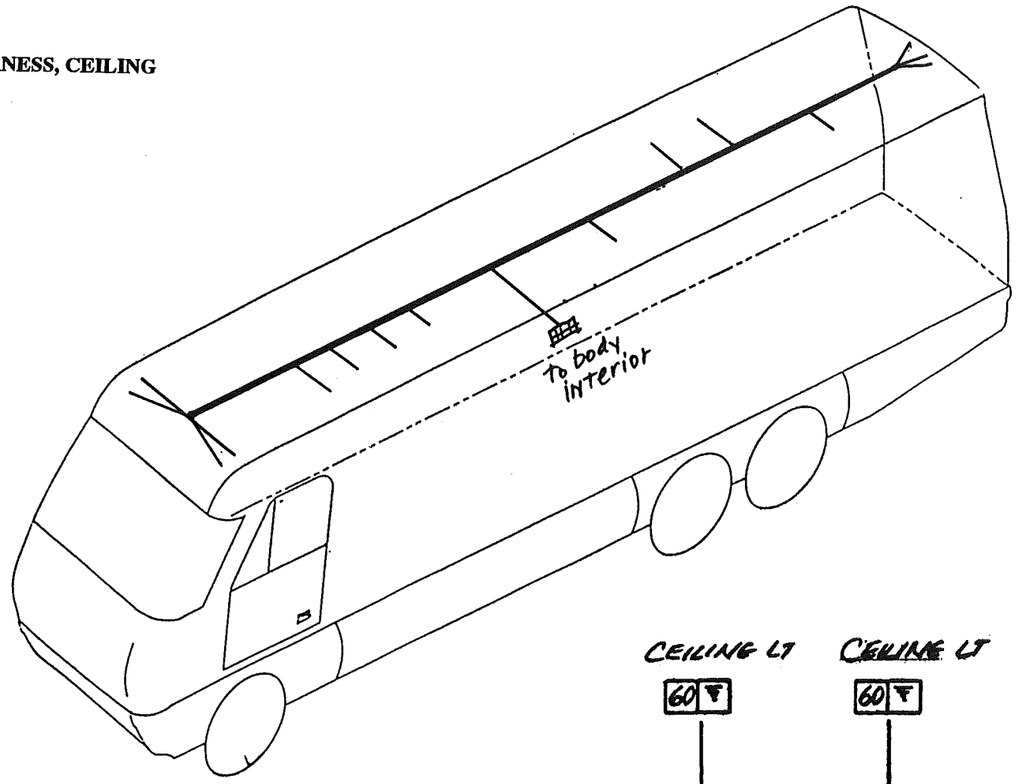
HARNESS, BODY INTERIOR

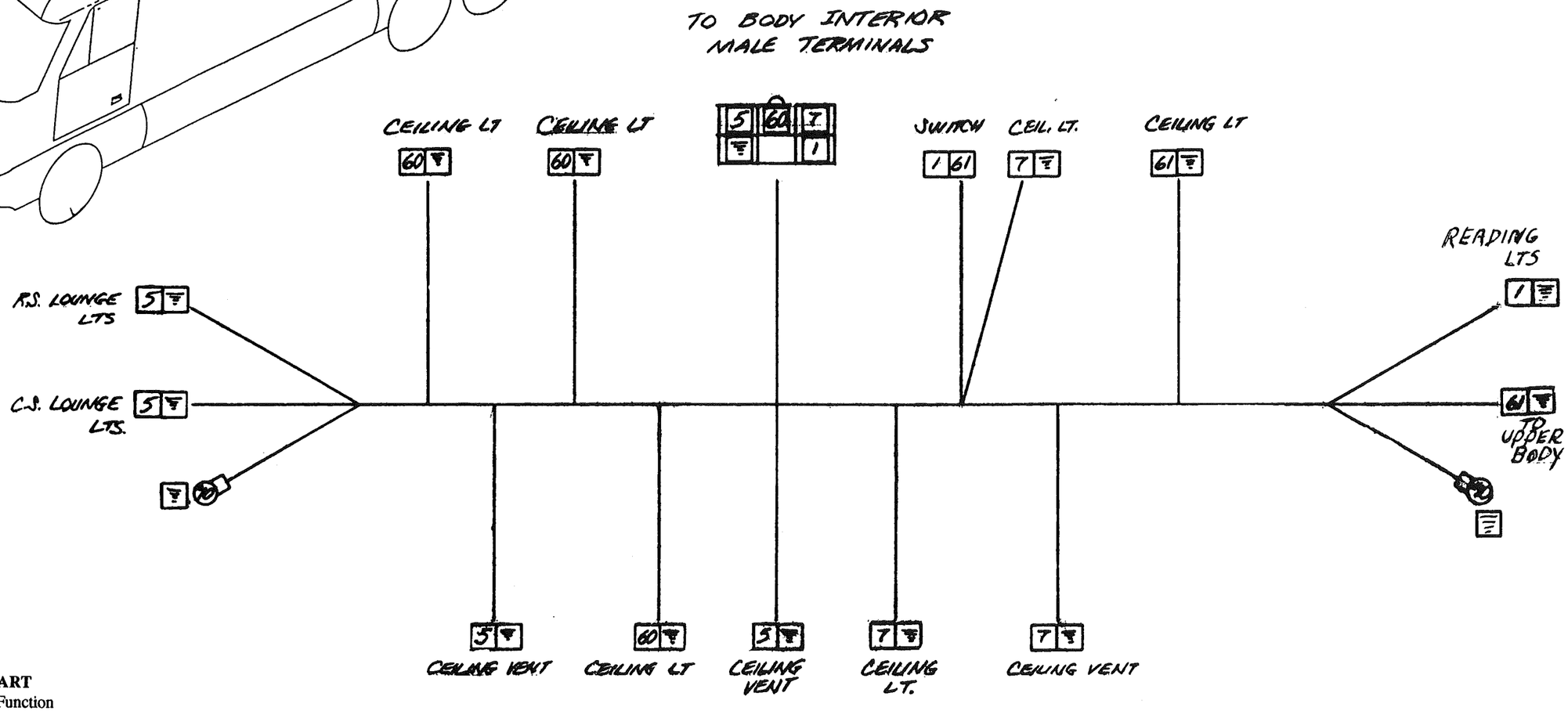


WIRE CHART			
Circ	GA	Color	Function
1	12	Purple	+12v, Bd.Rm. Lts.
2	12	Yellow	+12v, Bath Lts.
5	12	Blue	+12v, Locker Lts.
6	12	Red	+12v, Furniture & Comp. Lts.
7	12	Black	+12v, Ceil. Lights
9	12	Green	+12v, Control Panel
2A	12	Blue	Opt. Bath Fan
2B	12	Red	Opt. Bath Fan
2C	12	Black	Opt. Bath Fan
3C	12	Org/Wht	Water Pump
05	18	Orange	Batt. Sense
10	18	Blue/Wht	Furnace Thermostat
10A	18	Blue/Wht	Furnace Thermostat
21	12	Green	Aisle Lts.
29	12	Brn/Wht	Porch Lts.
30	18	Lt. Blue/Wht	LP Level
46	12	Brown	Water Heater
47	12	Lt. Blue	Water Heater
BT	18	Brown	Black Tank
GT	18	Green	Gray Tank
WT	18	Red	Fresh Tank
60	12	Blk/Wht	Ceil. Lts. Sw.

'12 PIN AMP' HOUSING P/N 770098-1 PIN P/N 350416-1		
Pin	Circ	Color
1	9	Green
2	05	Orange
3	3C	Org/Wht
4	30	Blu/Wht
5	9	Green
7	WT	Red
8	GT	Green
9	BT	Brown
11		White
12		White

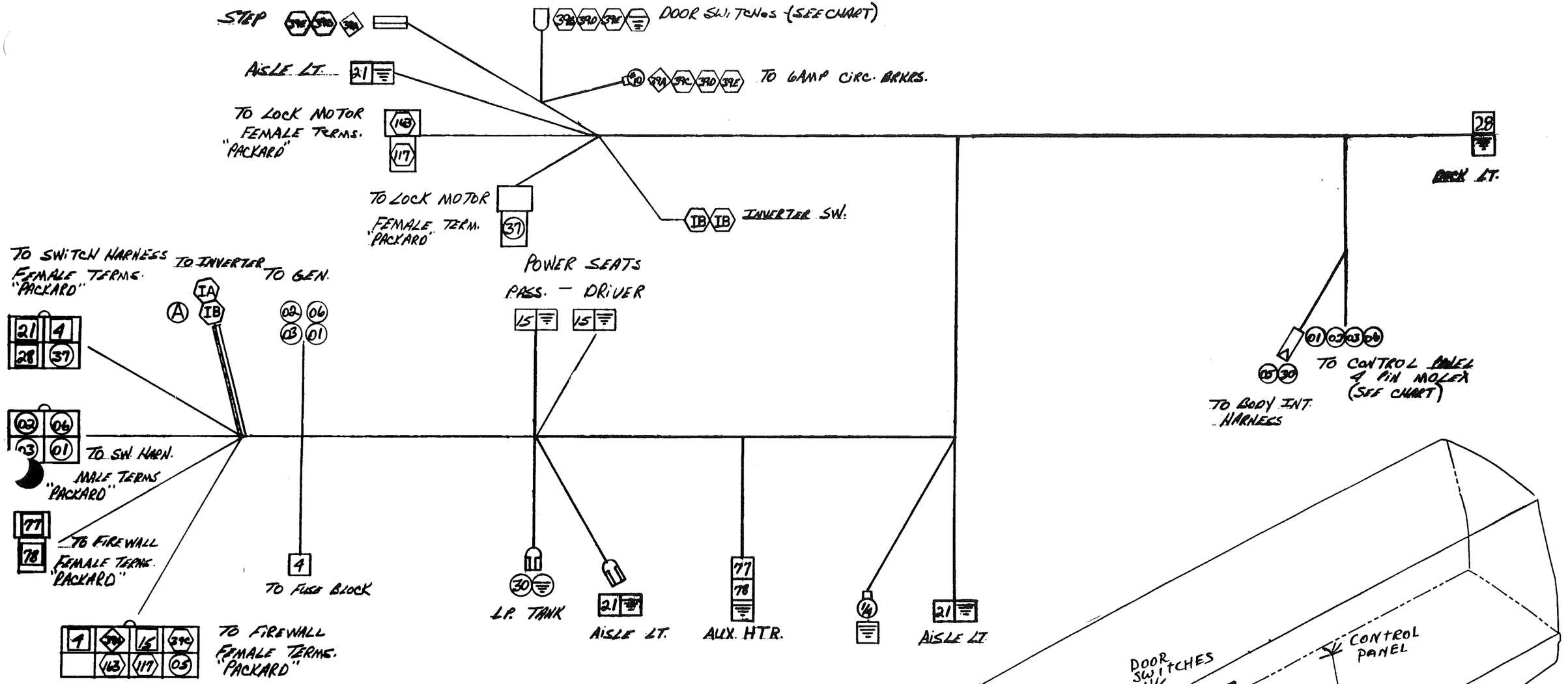
HARNESS, CEILING

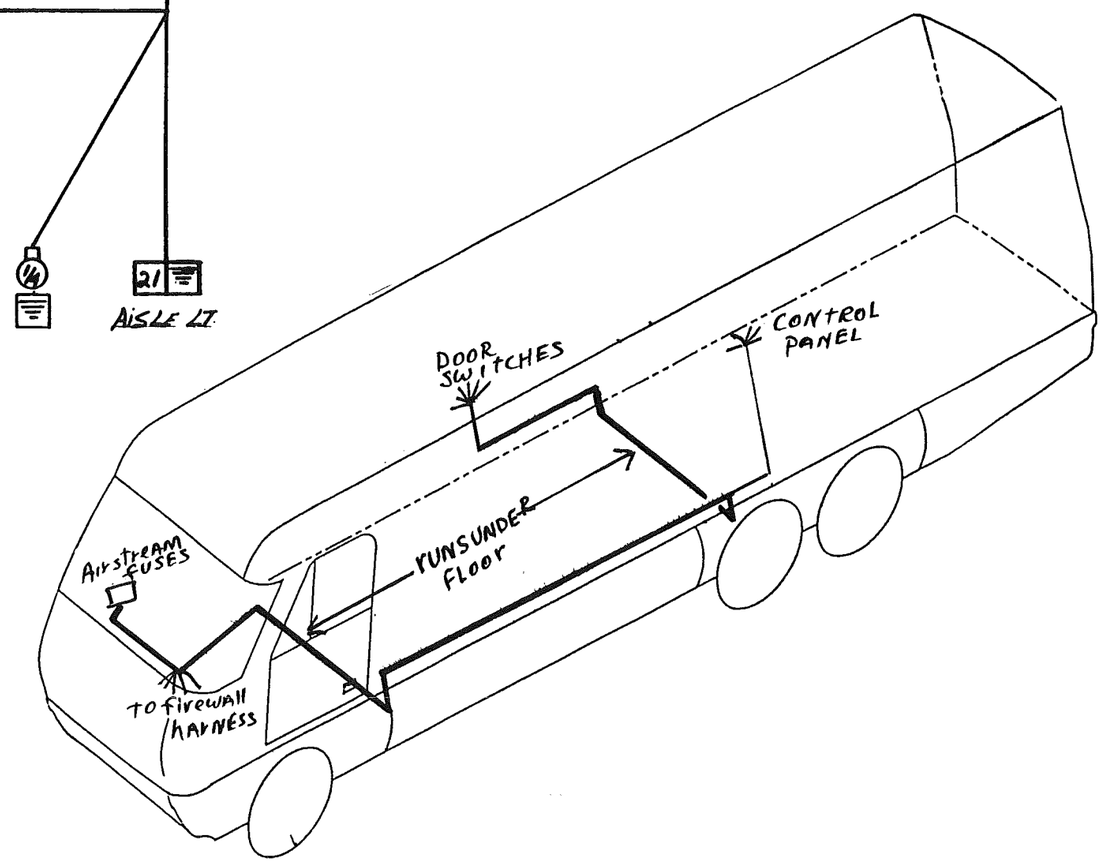




WIRE CHART

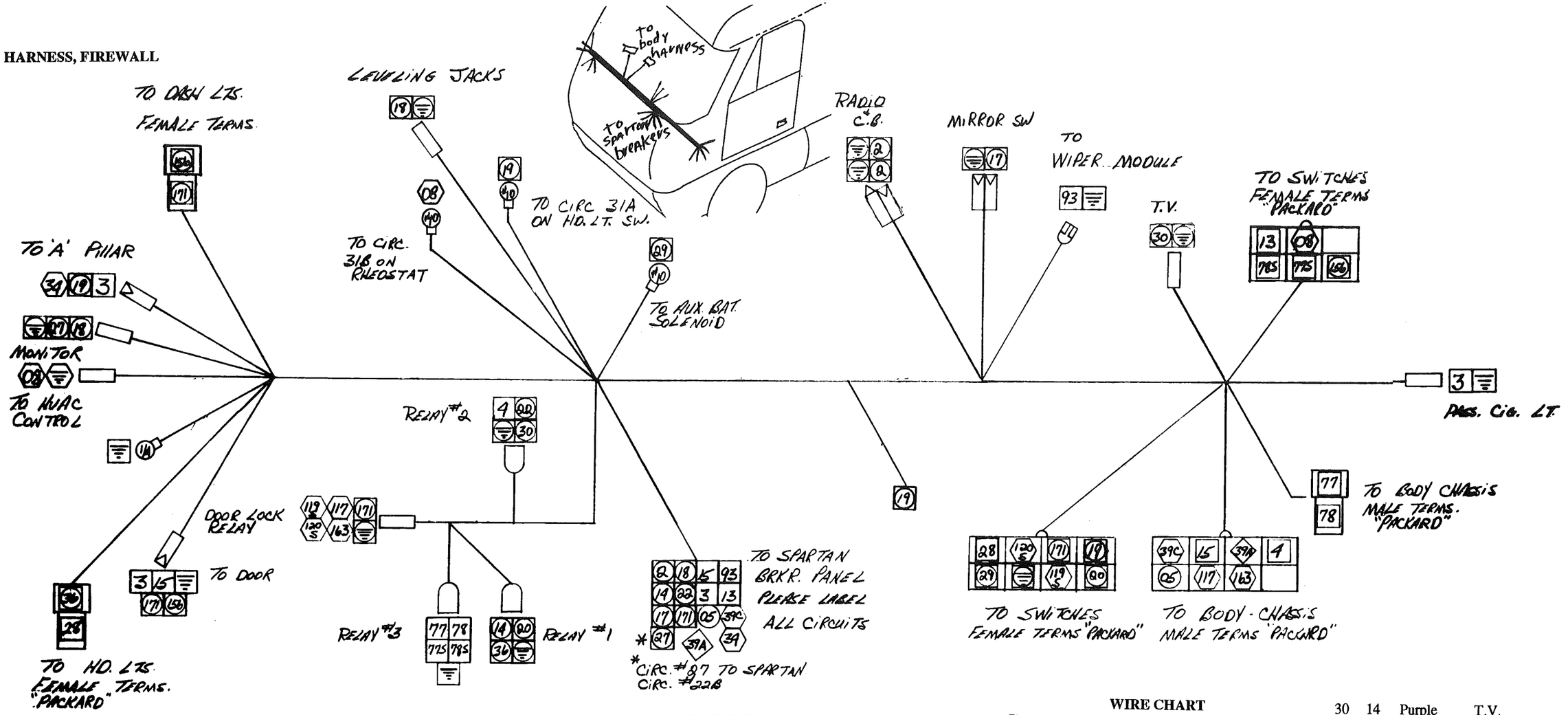
Circ.	Ga.	Color	Function
1	12	Purple	+12, Lights, Bed
5	12	Blue	+12, Lights & Vents
7	12	Black	+12, Light & Vent
60	12	Black/White	SWD, Ceiling Lt.
61	12	Purple/White	SWD, Lights, Bed





WIRE CHART

Circ.	Ga.	Color	Function
01	18	Black	Gen. (Ground)
02	18	Brown	Gen. (Stop)
03	18	Yellow	Gen. (Start)
05	18	Orange	Gen. (Batt. Cond. Eng.)
06	18	Red	Gen. (Hour meter)
4	12	Brown	+12v
15	12	Red	Pwr. Seats
21	12	Green	Aisle Lt.
28	12	Purple	Dock Lt.
30	18	Lt. Blu/Wh	LP Tank
37	18	Blk/Red	Lock Ind. Lt.
39A	10	Red	Step +12v (Red)
39B	16	Red/Wht	Step SW. (White)
39C	16	Red	Step +12v Ign.
39D	16	Red/Wht	Step SW.
39E	16	Yellow	Step +12v Ign. (Yellow)
77	12	Red	Aux. Heat (Lo)
78	12	Orange	Aux. Heat (Hi)
117	16	Pink/Blk	Door Lock
163	16	Red/Org	Door Unlock
IA	16	Purple	Inverter Sw.
IB	16	Orange	Inverter Sw.



DOOR LOCK RELAY

Relay Wire Color	Circ. Color	Source
Black	120s. Pink	Switches
Green	119S Yellow	Switches
Red	171 Blk/White	Spartan Breaker Panel
White	⏚	White
Orange	163 Red/Orange	Body Chassis
Blue	117 Pink/Blk.	Body Chassis

NOTES:
All Connectors wire side view

SWITCH CONNECTOR CHART

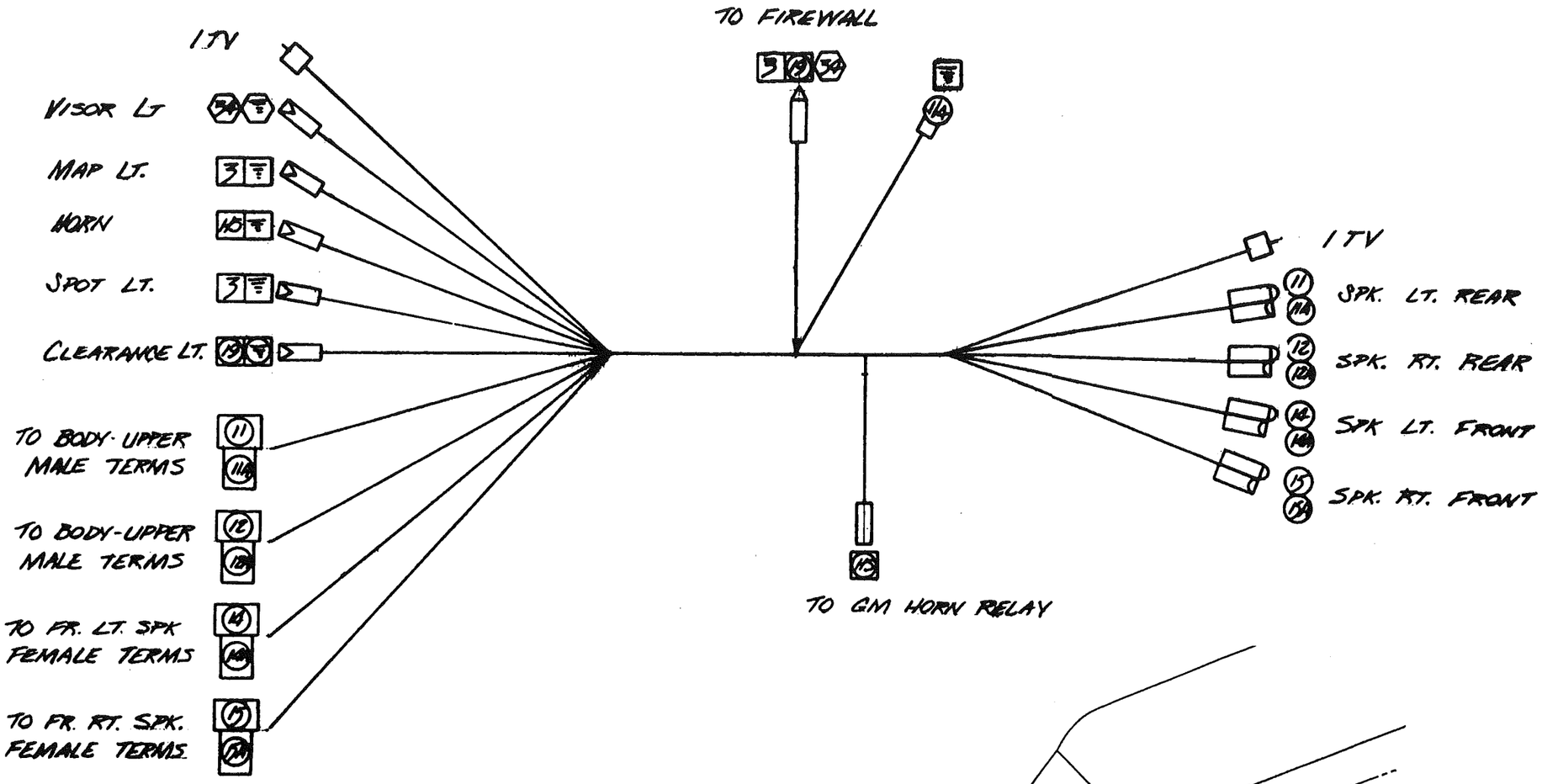
Relay	Pin 30	Pin 85	Pin 86	Pin 87	Pin 87A
#1	14	⏚	20	36	—
Drive Lts.	14 Blue +12V	14 White	14 Blue/Wt. Switched To Drive Lts.	14 Red	
#2	4	⏚	22	—	30
TV	12 Brown +12V	12 Wht.	14 Red +12V. Ign.	—	114 Purple To TV
#3	77S	⏚	78S	78	77
Aux. Heat.	12 Red/Org. Sw. Lo.	12 White	12 Org/White Sw. Hi	12 Orange Hi	12 Red Lo

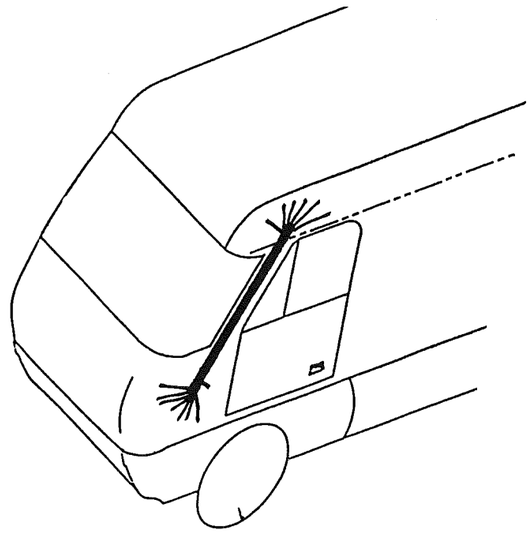
SPARTAN BREAKER PANEL HOOK-UP

Live	Switched
15A. Type 2 Breaker Circ. # 2, 171, 34, 05	12A Type 2 Breaker Circ. # 18, 22, 39C
30A. Type 2 Breaker Circ. # 3, 15, 39A	20A Type 2 Breaker Circ. # 14, 17, 13
	25A Breaker Circ. # 93

WIRE CHART

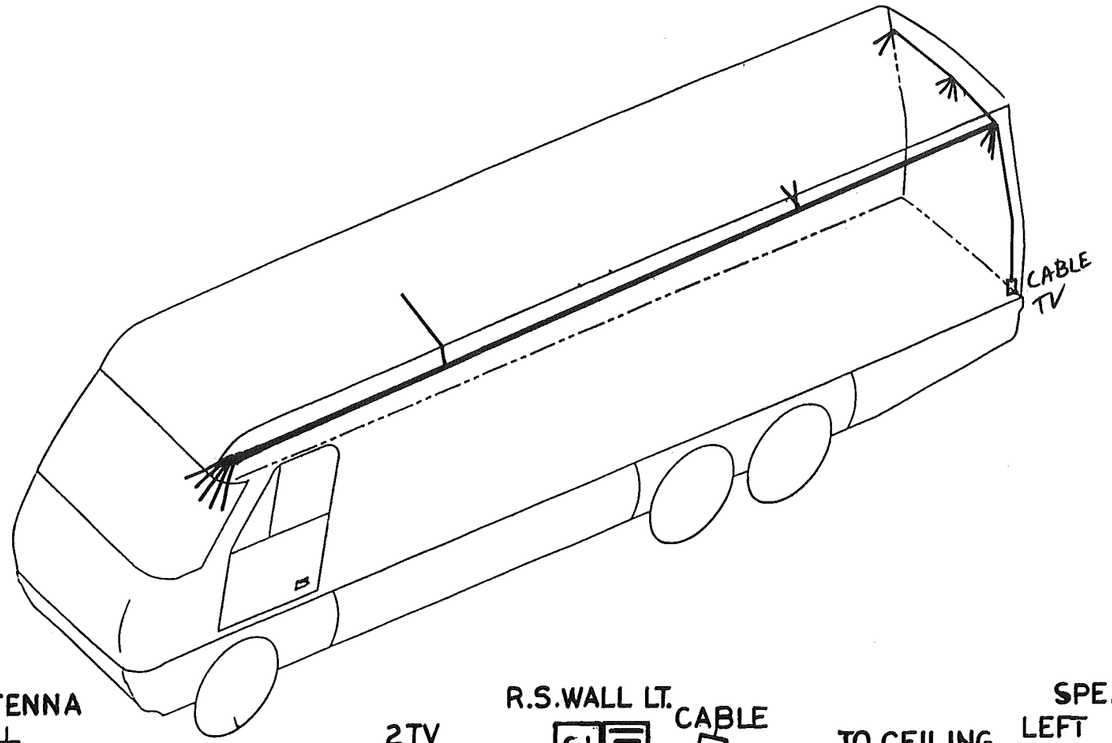
Circ.	Ga.	Color	Function
05	18	Orange	Auto Batt. Level
08	16	Gray	I.D. lts - Rheo.
2	14	Orange	Radio
3	12	Orange	Cig. Lighters
4	12	Brown	TV Power
14	14	Blue	+12, Drive Lts.
15	12	Red	Pwr. Seat & Wind.
17	14	Orange	Mirrors
18	14	Yellow	Monitor
19	14	Brown	Clearance Lts.
20	14	Blue/Wht.	Drive Lt. Relay
22	14	Red	+12v, Ign. SW.
27	14	Green	Monitor (Back-up Sw.)
28	12	Purple	Dock. Lts.
29	14	Yellow	Aux. Start Sol.
30	14	Purple	T.V.
34	16	Blue	Visor Lt.
36	14	Red	Drv. Lt. Pwr.
39A	10	Red	+12v, Step
39C	16	Red	+12v, Ign. Step
117	16	Pink/Blk	Door Lock
163	16	Red/Org.	Door Unlock
171	14	Blk/Wht	+12v, Door Locks
156	14	Green	Courtesy Lt.-Ground
13	12	Blue	+12v, Aux. Heat
77S	12	Red/Org.	Aux. Heat Sw Lo
78S	12	Org/Wht	Aux. Heat Sw Hi
77	12	Red	Aux. Heat Lo
78	12	Orange	Aux. Heat Hi
93	12	Yellow	+12v, Wipers
119S	16	Yellow	Door Sw Lock
120S	16	Pink	Door Sw Unlock

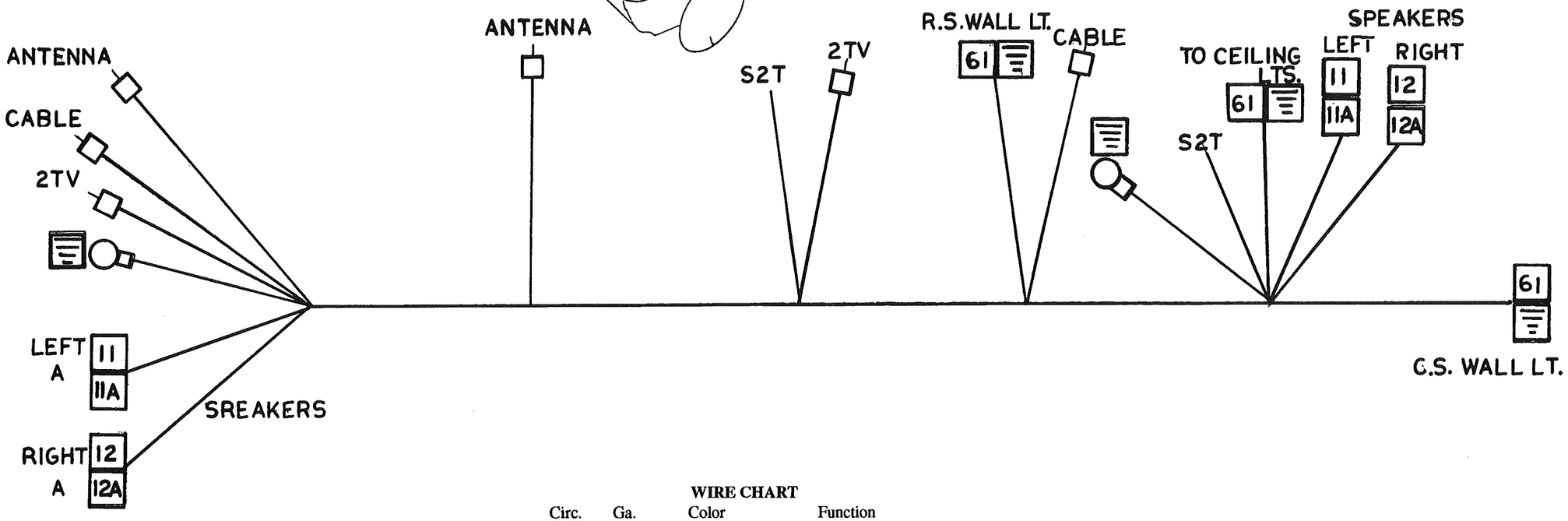




WIRE CHART

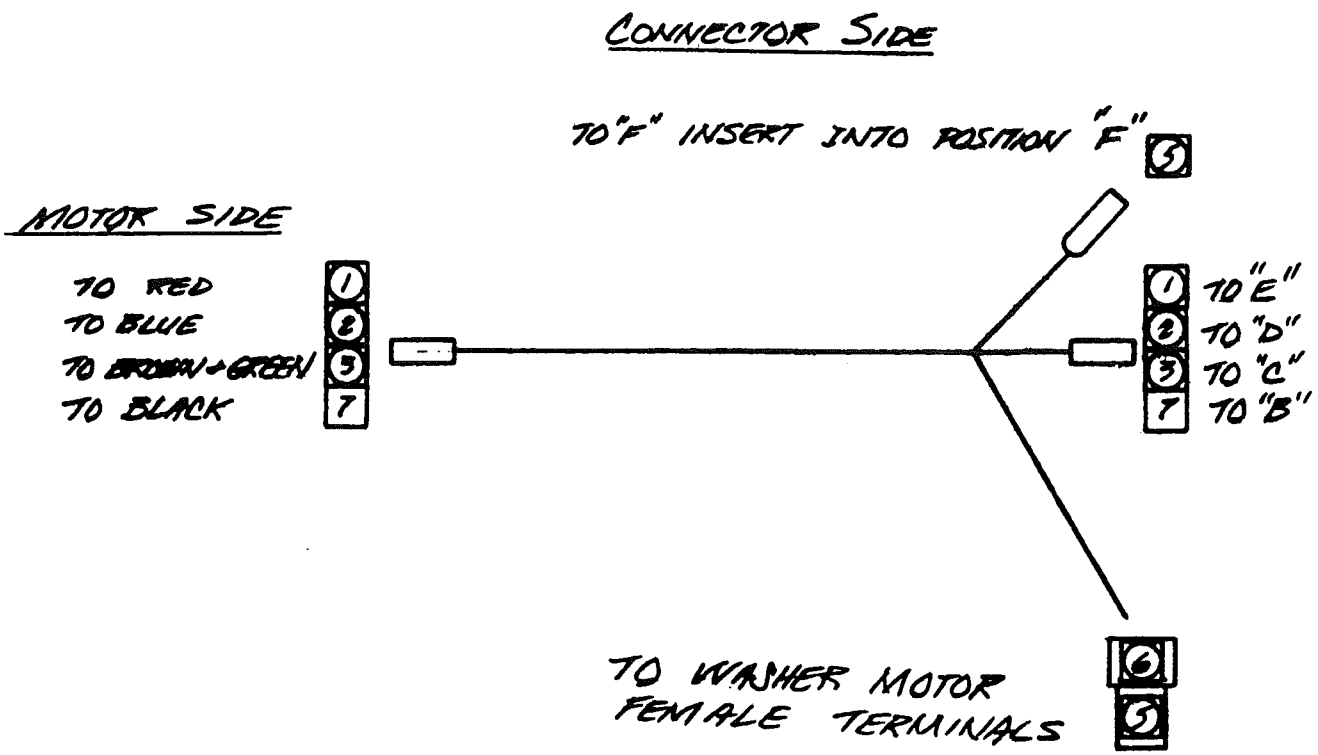
Circ.	Ga.	Color	Function	14A	18	Black	Neg, Lt. Fr. Spk.
3	12	Orange	Spot + Map Lt.	15	18	Red	Pos, Rt. Fr. Spk.
11	18	Gray	Pos,. Lt. RR. Spk.	15A	18	Black/Wht	Neg, Rt. Fr. Spk.
11A	18	Black	Neg, Lt. RR. Spk.	19	14	Brown	Clearance Lts.
12	18	Orange	Pos, Rt. RR. Spk.	34	16	Blue	Visor Lt.
12A	18	Black/Wht	Neg, Rt. RR. Spk.	HS	14	Green/Wht	Horn
14	18	Blue	Pos, Lt. Fr. Spk.	1TV	RG-59U Coax.		VCR to Fr. TV

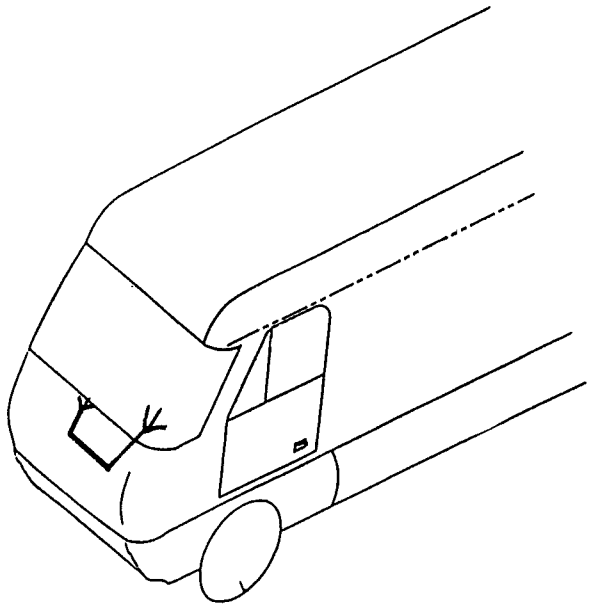




WIRE CHART

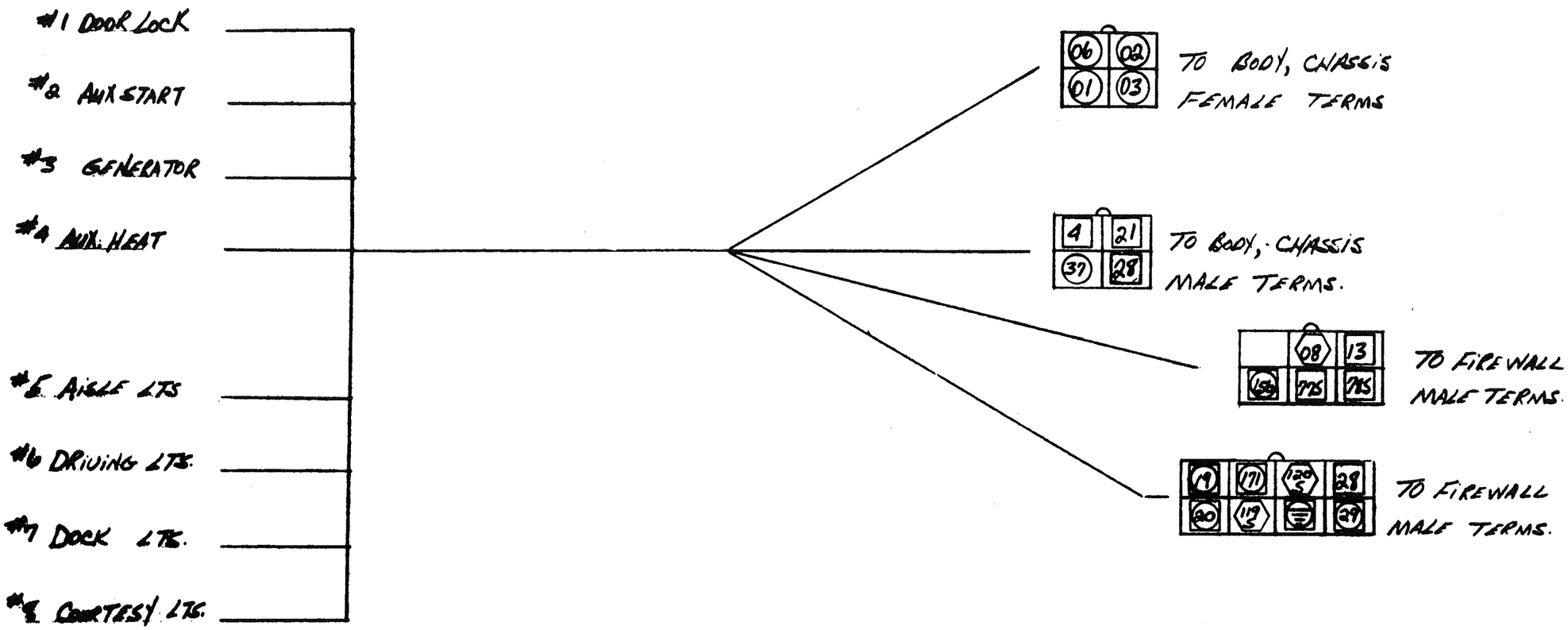
Circ.	Ga.	Color	Function
11	18	Gray	Pos, Lt. RR. Spk.
11A	18	Black	Neg, Lt. RR. Spk.
12	18	Orange	Pos, Rt. RR. Spk.
12A	18	Blk/Wht	Neg, Rt. RR. Spk.
61	12	Purple/Wht	Bed. Lts. Swd.
S2T	18	Gray/Gray/Wht.	RR. TV REmote Spk.
Antenna	RG-59U	Coax	Antenna To VCR
Cable	RG-59U	Coax	Cable Inl. to VCR
2TV	RG-59U	Coax	VCR to RR. TV





WIRE CHART

Circ.	Ga.	Color
1	14	Red
2	14	Blue
3	14	Green
5	14	Blue/White
6	14	Black
7	12	Black



SWITCH CONNECTOR CHART

Switch	Pin 2	Pin 4	Pin 6	Lt. Pins 3 & 4	Lt. Pins 5 & 6
#1 Door Lock	171 14 Blk/Wht	119S 16 Yel	120S 16 Pk	37 & 171 18 Blk/Red 14 Blk/Wht	O8 & ⩧ 16 Gray/Wht
#2 Aux. Start	4 12 Brown	29 14 Yellow			O8 & ⩧ 16 Gray/Wht
#3 Generator	01 18 Blk	03 18 Yellow	02 18 Brown	06 & ⩧ 18 Red/Wht	08 & ⩧ 16 Gray/Wht
#4 Aux. Heat	13 12 Blue	78S 12 Org/Wht (Hi)	Pin3 77S 12 Red/Wht (Lo)	16 Gray/Wht	08 & ⩧
#5 Aisle Lts.	4 12 Brown	21 12 Green			08 & ⩧ 16 Gray/Wht
#6 Drive Lts.	19 14 Brown	20 14 Blue/Wht			08 & ⩧ 16 Gray/Wht
#7 Dock Lts.	4 12 Brown	28 12 Purple			08 & ⩧ 16 Gray/Wht
#8 Courtesy Lts.	156 14 Grn	⩧ 14Wht			08 & ⩧ 16 Gray/Wht

NOTES:

1. All Connectors wire side view

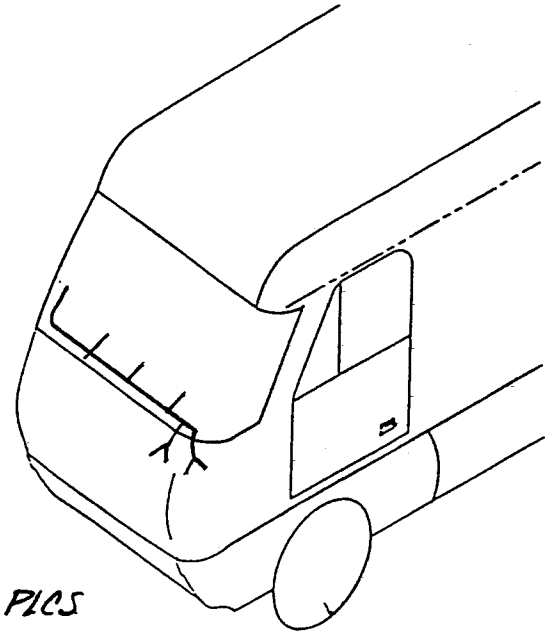
WIRE CHART

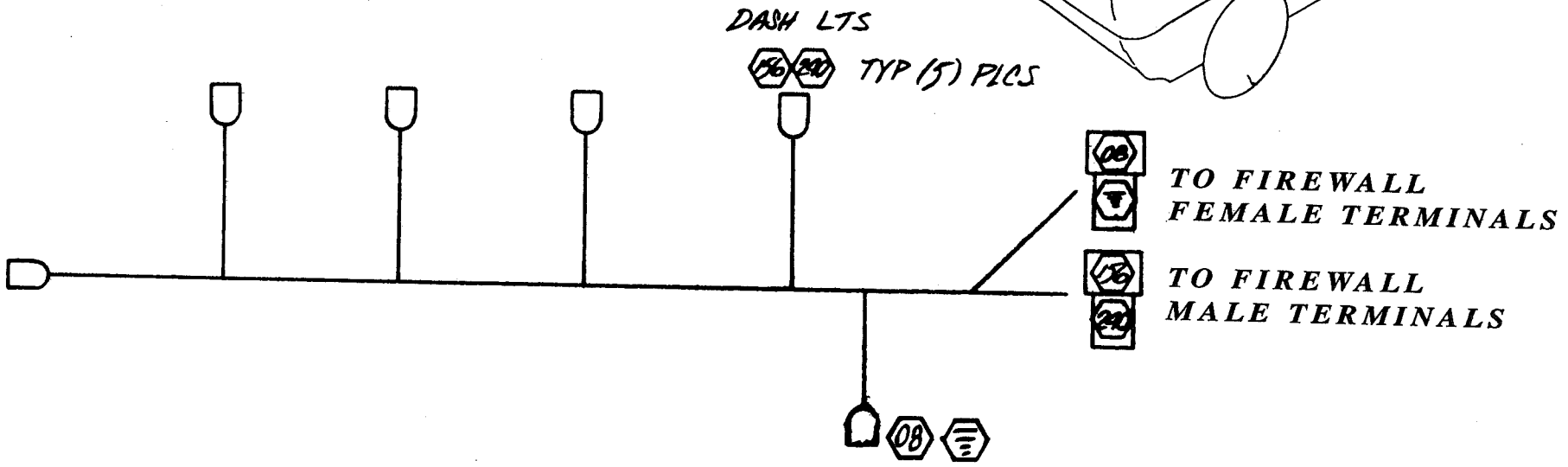
Circ.	Ga.	Color	Function
01	18	Black	Gen. (Ground)
02	18	Brown	Gen. (Stop)
03	18	Yellow	Gen. (Start)
06	18	Red	Gen. (Hour meter)
08	16	Gray	I.P. Lts. - Rheo.
4	12	Brown	+12V
19	14	Brown	Tail & Marker Lts.
20	14	Blue/Wht	Drive Lt. Relay
21	12	Green	Aisle Lts.
28	12	Purple	Dock Lts.
29	14	Yellow	Aux. Start Sol.
37	18	Blk/Red	Lock Ind. Lt.
119S	16	Yellow	Door Lock
120S	16	Pink	Door Unlock
156	14	Green	Courtesy Lt. Grnd.
171	14	Blk/Wht.	H2V, Door Lock
13	12	Blue	+12V Aux. Heat
77S	12	Red/Wht	Aux. Heat SW (Lo)
78S	12	Org/Wht	Aux. Heat SW (Hi)

HARNESS, DASHLIGHTS

WIRE CHART

Circ.	Ga.	Color	Function
156	16	Green	Dash Lts, Ground
240	16	Orange	Dash Lts, +12
08	16	Gray	Instrument Lts. +12

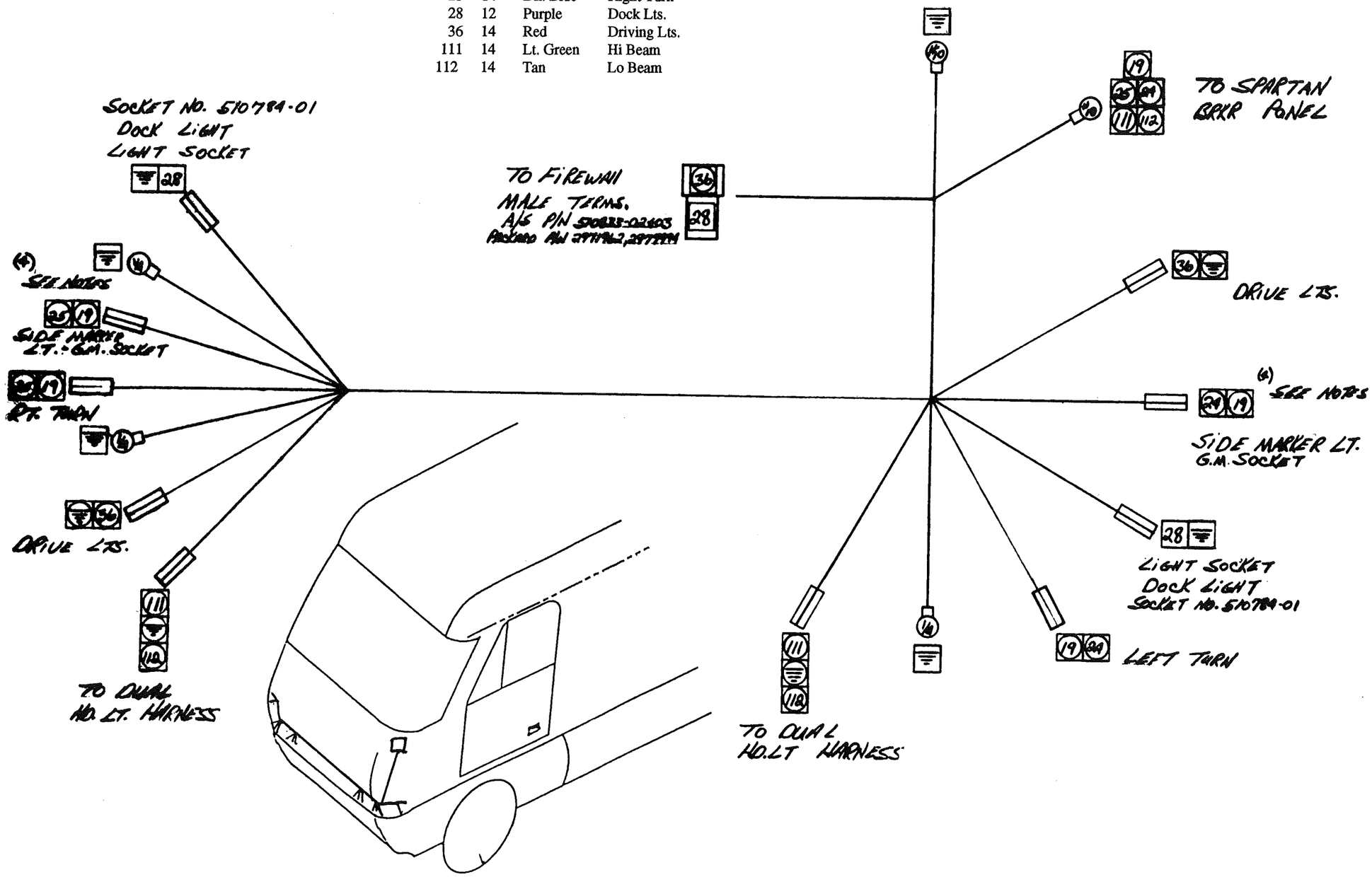




HARNESS, HEADLIGHTS

WIRE CHART

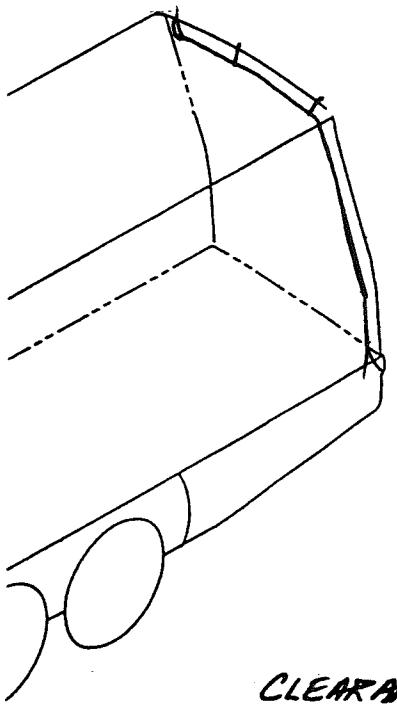
Circ.	Ga.	Color	Function
19	14	Brown	Park Lts.
24	14	Lt. Blue	Left Turn
25	14	Dk. Blue	Right Turn
28	12	Purple	Dock Lts.
36	14	Red	Driving Lts.
111	14	Lt. Green	Hi Beam
112	14	Tan	Lo Beam

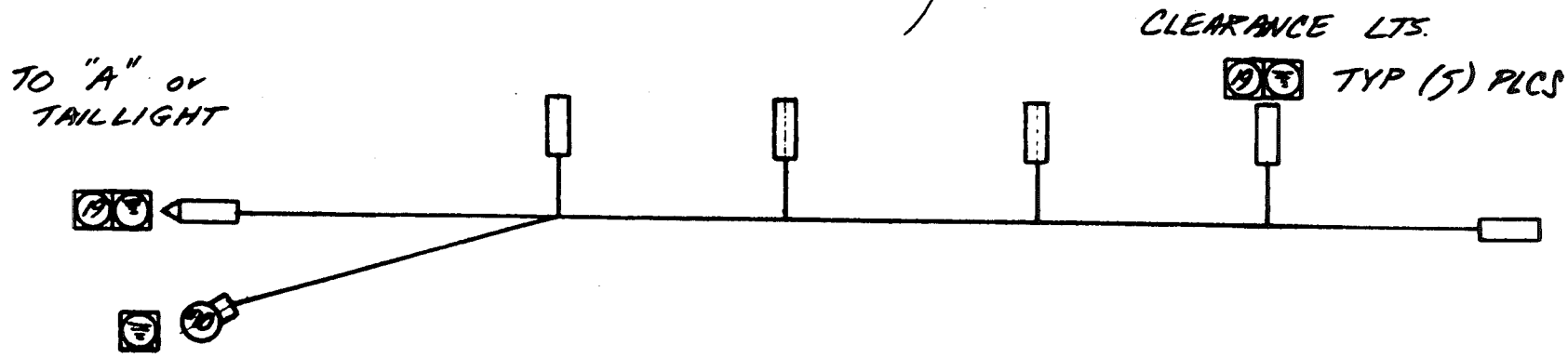


HARNESS, CLEARANCE LIGHTS, REAR

WIRE CHART

Circ.	Ga.	Color	Function
19	14	Brown	Clearance Lts.

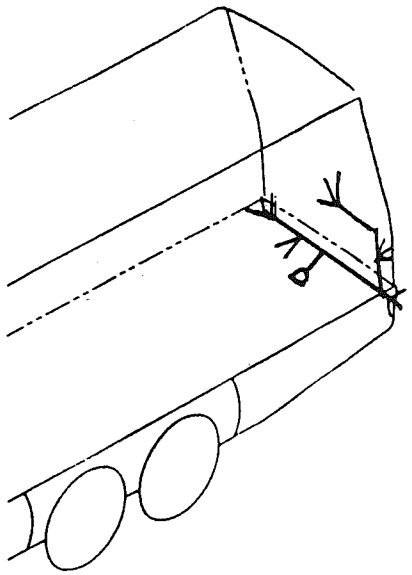


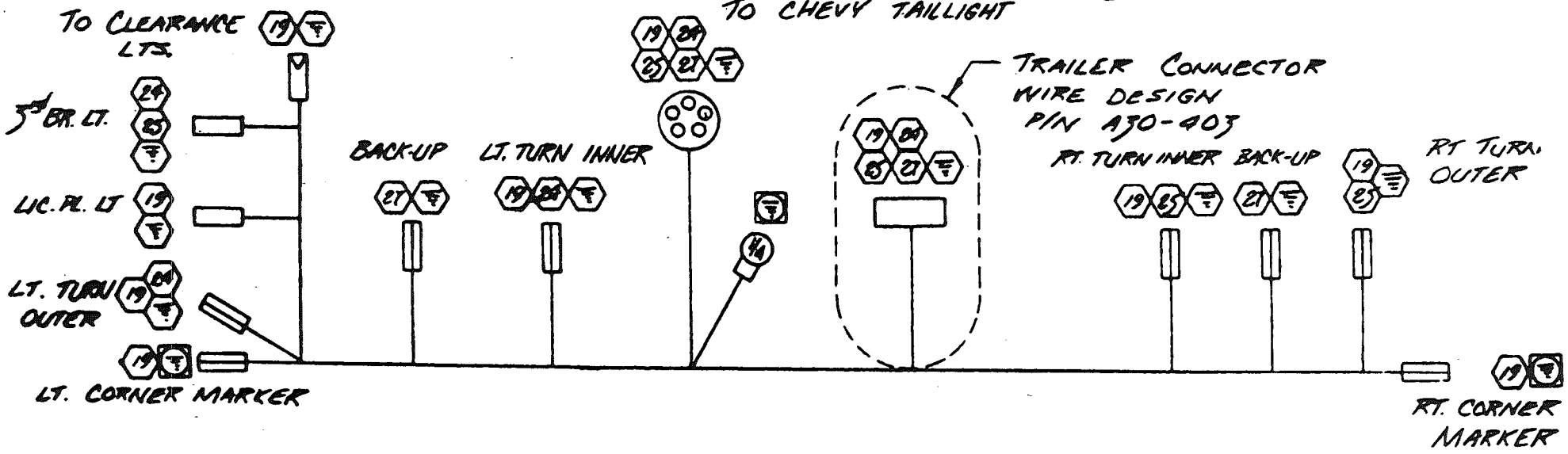


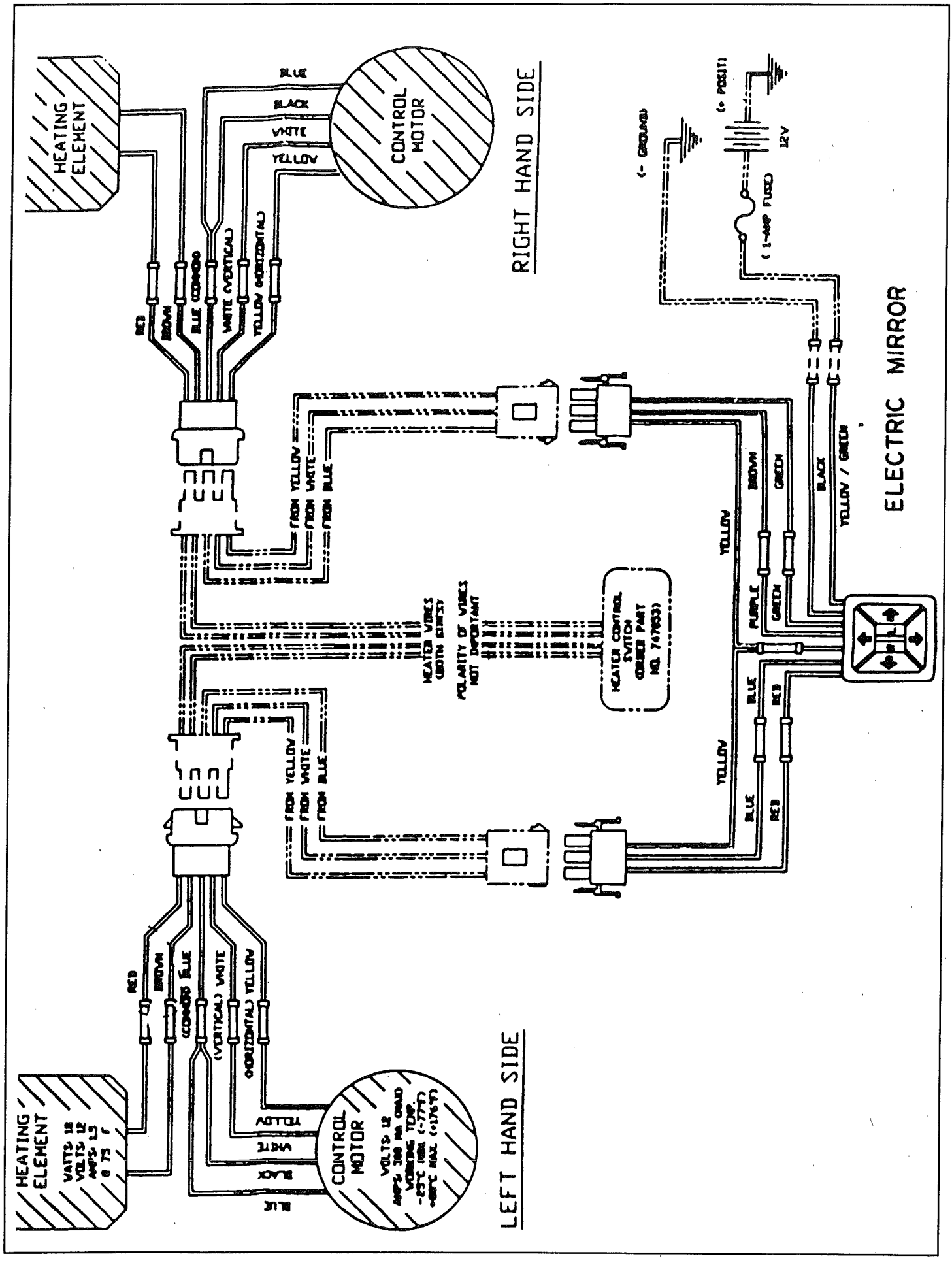
HARNESS, TAILLIGHTS

WIRE CHART

Circ.	Ga.	Color	Function
19	16	Brown	Taillights
24	16	Yellow	Left Turn
25	16	Dk. Green	Right Turn
27	16	Lt. Green	Back-up

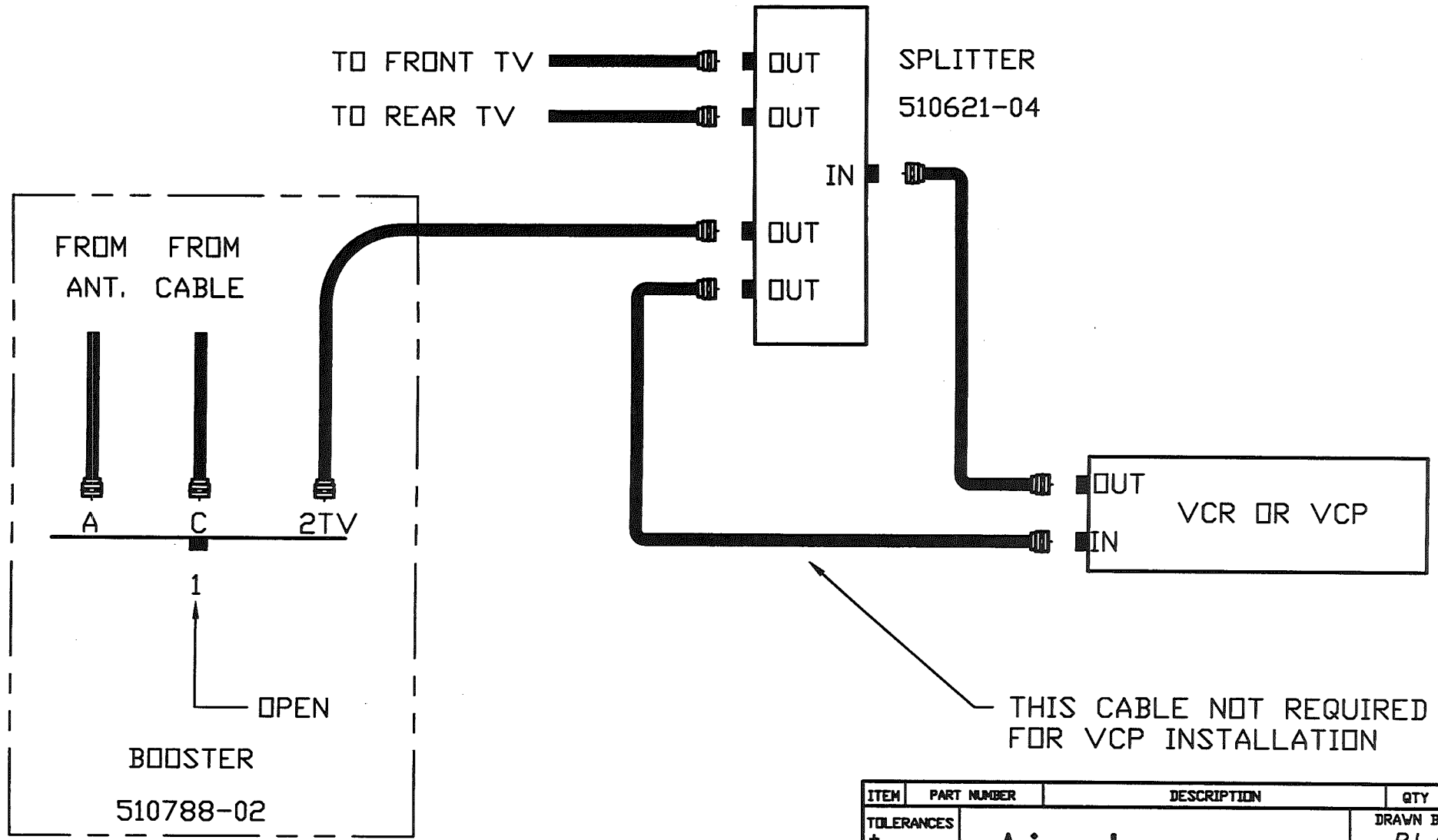





HEATING ELEMENT
CONTROL MOTOR
BLUE
BLACK
WHITE
YELLOW
RIGHT HAND SIDE
(- GROUND)
(+ POSITI)
12V
(1-AMP FUSED)
ELECTRIC MIRROR
RED
BROWN
BLUE (COMMON)
WHITE (VERTICAL)
YELLOW (HORIZONTAL)
FROM YELLOW
FROM WHITE
FROM BLUE
HEATER WIRES (BOTH SIDES)
POLARITY OF WIRES NOT IMPORTANT
HEATER CONTROL SWITCH (ORDER PART NO. 747953)
YELLOW
BROWN
GREEN
BLACK
YELLOW / GREEN
PURPLE
GREEN
BLUE
RED
BLUE
RED
HEATING ELEMENT
CONTROL MOTOR
LEFT HAND SIDE

952518

LET	DATE	E.C.N.	REVISION RECORD	BY
	10/94	4467D	PRODUCTION RELEASE	RA



ITEM	PART NUMBER	DESCRIPTION	QTY	UM

TOLERANCES ±	Airstream	DRAWN BY R.L.A.
NEXT ASS'Y	PRODUCT LINE MOTORHOME	APPROVED BY
TITLE	COAX CABLE CONNECTIONS	
SCALE 1=1	DATE 10/17/94	DRAWING NUMBER 952518 A REV.

Operation

To check tank capacities or battery condition, depress the switch marked "test." In order to obtain a true reading on the batteries, you must be unplugged from city power and disconnected from your tow vehicle.

The red indicator light on the left marked "AC Power" will be illuminated when 120 volt alternating current is available. The light will be illuminated whether you're plugged into city power or if your generator is running. There is a built in delay if you're switching back and forth between the two power sources.

The range exhaust 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.

CAUSE:
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 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.

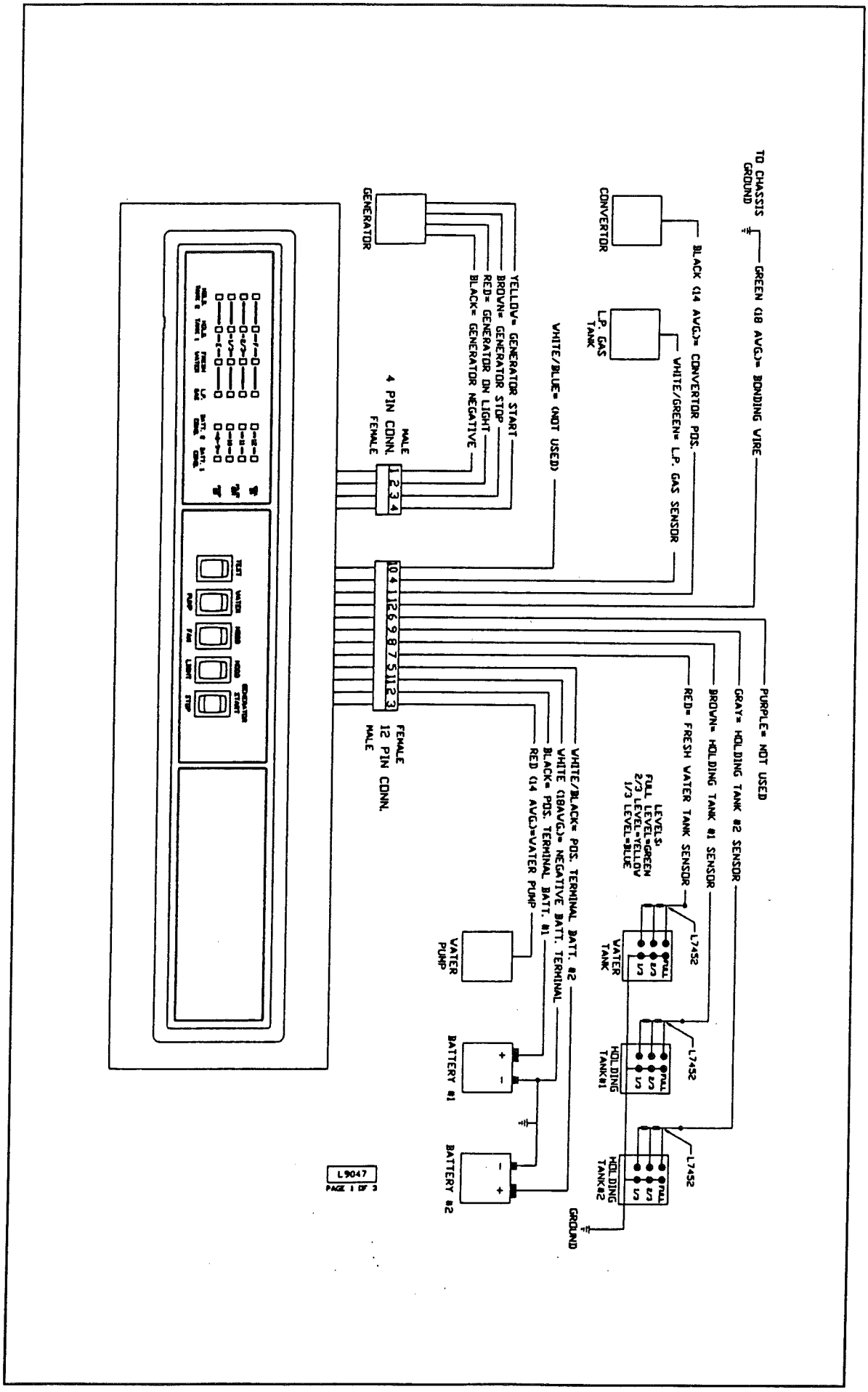
REMEDY:
1. Check and repair wiring from tank to panel and tank to ground.
2. Repair or replace tank sending unit.
3. Repair or replace circuit board.

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.

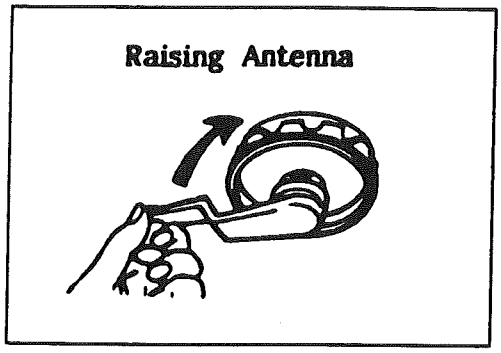

TO CHASSIS GROUND
GREEN (18 AVG.)= BONDING WIRE
PURPLE= NOT USED
GRAY= HOLDING TANK #2 SENSOR
BROWN= HOLDING TANK #1 SENSOR
RED= FRESH WATER TANK SENSOR
BLACK (14 AVG.)= CONVERTOR POS.
WHITE/GREEN= L.P. GAS SENSOR
CONVERTOR
L.P. GAS TANK
GENERATOR
YELLOW= GENERATOR START
BROWN= GENERATOR STOP
RED= GENERATOR ON LIGHT
BLACK= GENERATOR NEGATIVE
WHITE/BLUE= (NOT USED)
MALE
4 PIN CONN.
FEMALE
1 2 3 4
0 4 11 10 6 9 8 7 5 11 12 3
FEMALE
12 PIN CONN.
MALE
WHITE/BLACK= POS. TERMINAL BATT. #2
WHITE (18AVG.)= NEGATIVE BATT. TERMINAL
BLACK= POS. TERMINAL BATT. #1
RED (14 AVG.)=WATER PUMP
LEVELS:
FULL LEVEL=GREEN
2/3 LEVEL=YELLOW
1/3 LEVEL=BLUE
L7452
WATER TANK
HOLDING TANK#1
HOLDING TANK#2
WATER PUMP
BATTERY #1
BATTERY #2
GROUND
L9047

TV ANTENNA

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

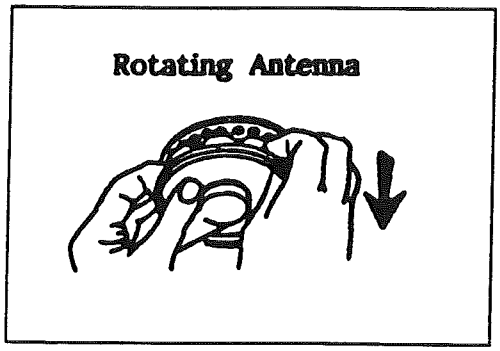
Raising Antenna to Operating Position

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.

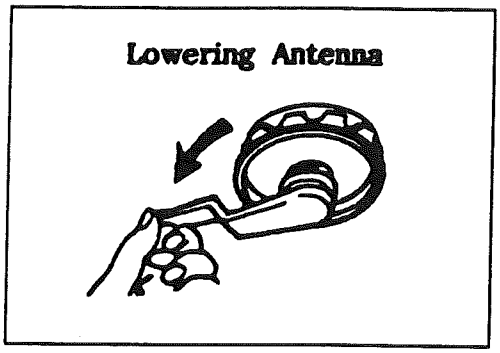


Lowering Antenna to Travel Position

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

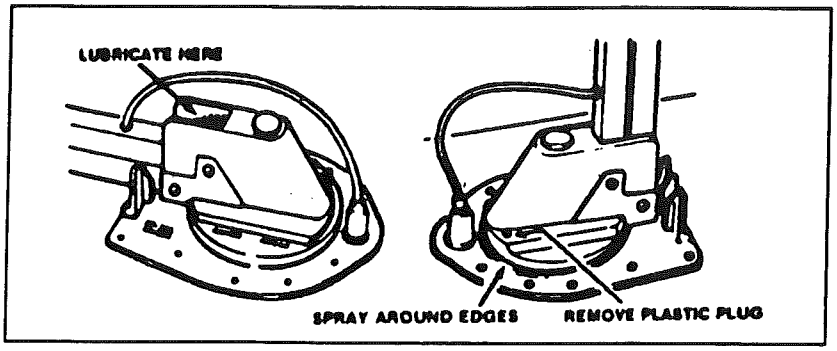
1. Do check parking location for obstructions before raising antenna.
2. Do carefully raise, lower and rotate - if difficult, check for cause.
3. Do rotate slowly when selecting station and check fine tuning on TV set to make sure it is properly adjusted.
4. Do lower antenna before moving vehicle.

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.

Maintenance
Lubrication

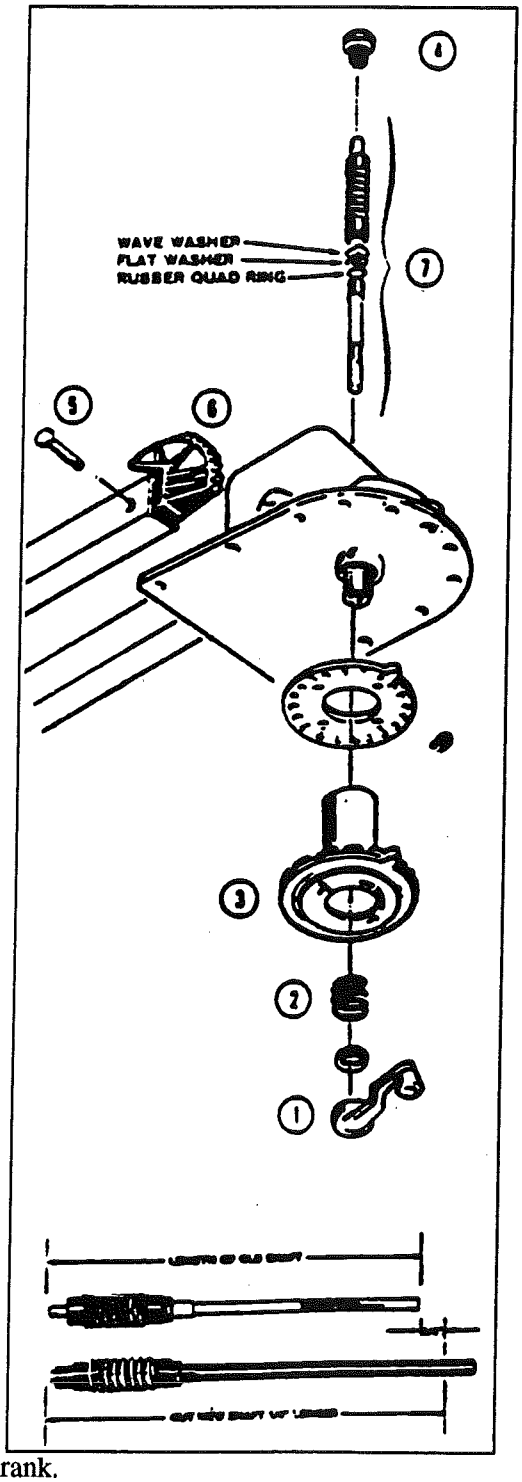
To lubricate the elevating gear apply a liberal amount of silicone spray lubricant to the elevating gear with the lift in the down position, then run the lift up and down a few times to distribute lubricant over gears.



Lubricating Rotating Gear Housing

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

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



Elevating Shaft Worm Gear Assembly Replacement Procedure

STEP 1: Lower antenna to travel position and refer to drawing to identify parts indicated in steps below.

STEP 2: Loosen set screw on elevating crank (#1) and remove crank (#1), spring (#2), directional handle (#3).

STEP 3: Go to roof of vehicle and Qs remove retaining ring from pin (#5) holding top elevator tube in rotating gear housing and remove pin.

STEP 4: Remove bearing plug (#4) from top of rotating gear housing. Disengage elevating gear (#6) and remove elevating shaft assembly (#7).

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

STEP 5: Cut new shaft 1/4" longer than old shaft. See Illus: Discard old bearing plug item (#4).

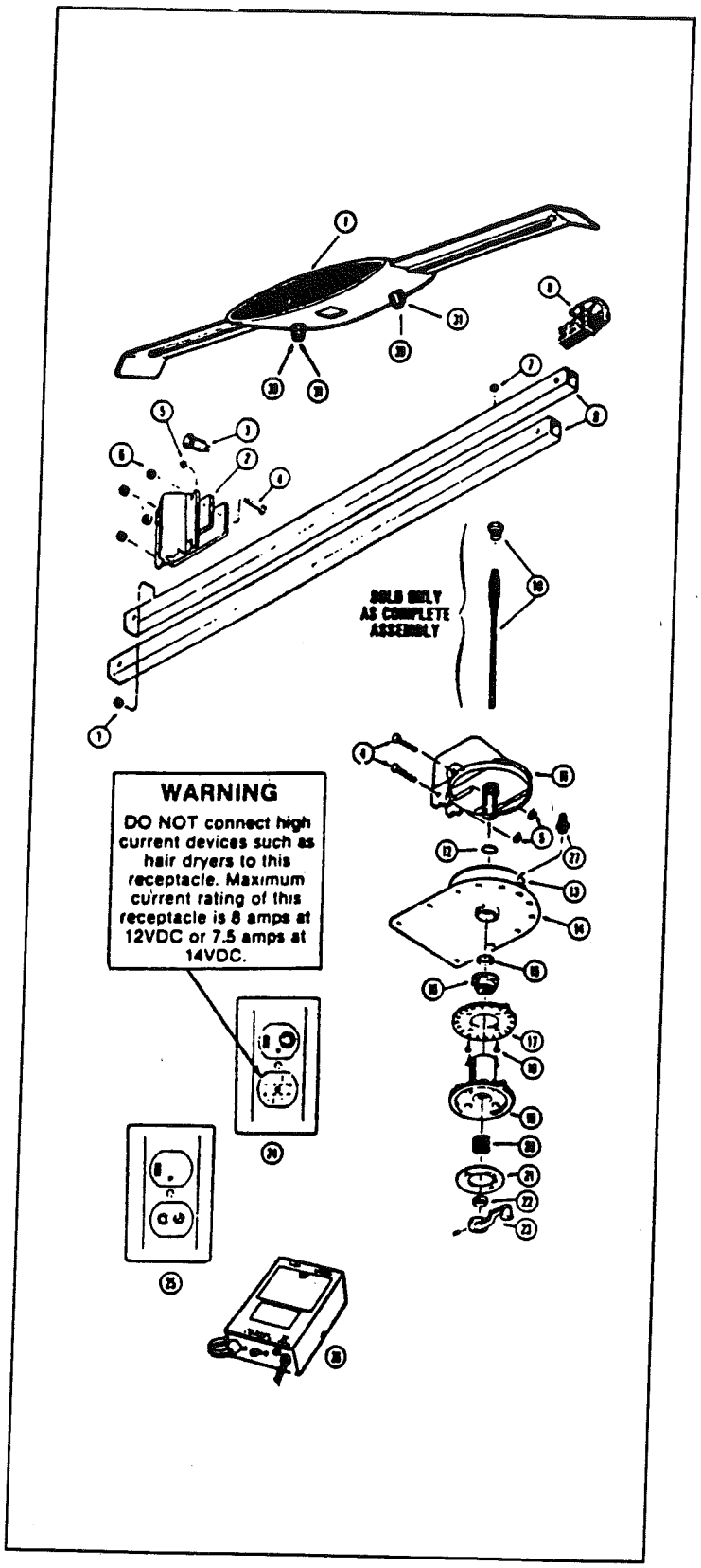
STEP 6: Lubricate worm gear on new elevating shaft assembly with spray silicone lubricant, make sure quad ring, washer and wave washer are on lower bearing and insert assembly in housing.

STEP 7: Install new plastic bearing plug in top of housing. Re-engage elevating gear in worm gear. Replace pin and retaining ring.

STEP 8: Replace directional handle, spring and elevating crank. Make sure set screw contacts flat on shaft before tightening.

PARTS DESCRIPTION

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



ANTENNA, RADIO, CB, CELLULAR TELEPHONE

Not including the TV antenna, your motorhome may have as many as three other antenna.

The AM/FM **radio antenna** is a solid whip type with a flexible coil base. The coil base certainly helps extend the life of the antenna but hitting low branches and other objects at high speed can lead to severe damage.

The optional **C.B. antenna**, if factory installed will have been adjusted to obtain maximum performance and no further adjustment should be required.

The lead-in wire from the **cellular phone** antenna is coiled under the dash behind the kick panel in front of the passenger cab seat. The panel is removed by taking out the screws you can see through the vent grill and there are a couple of screws along the vertical right side of the panel.

SOLAR POWER

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

The second option is 53 watt panel or panels. These produce some serious power and a regulator is required to prevent battery over charging. A volt meter is included so the status of the batteries can be monitored at a glance. With a little common sense and cooperation of Mother Nature you can camp in warm weather for days without resorting to any other power source.

The units that are pre-wired for solar will have four wires coiled behind the cluster of switches at the main door.

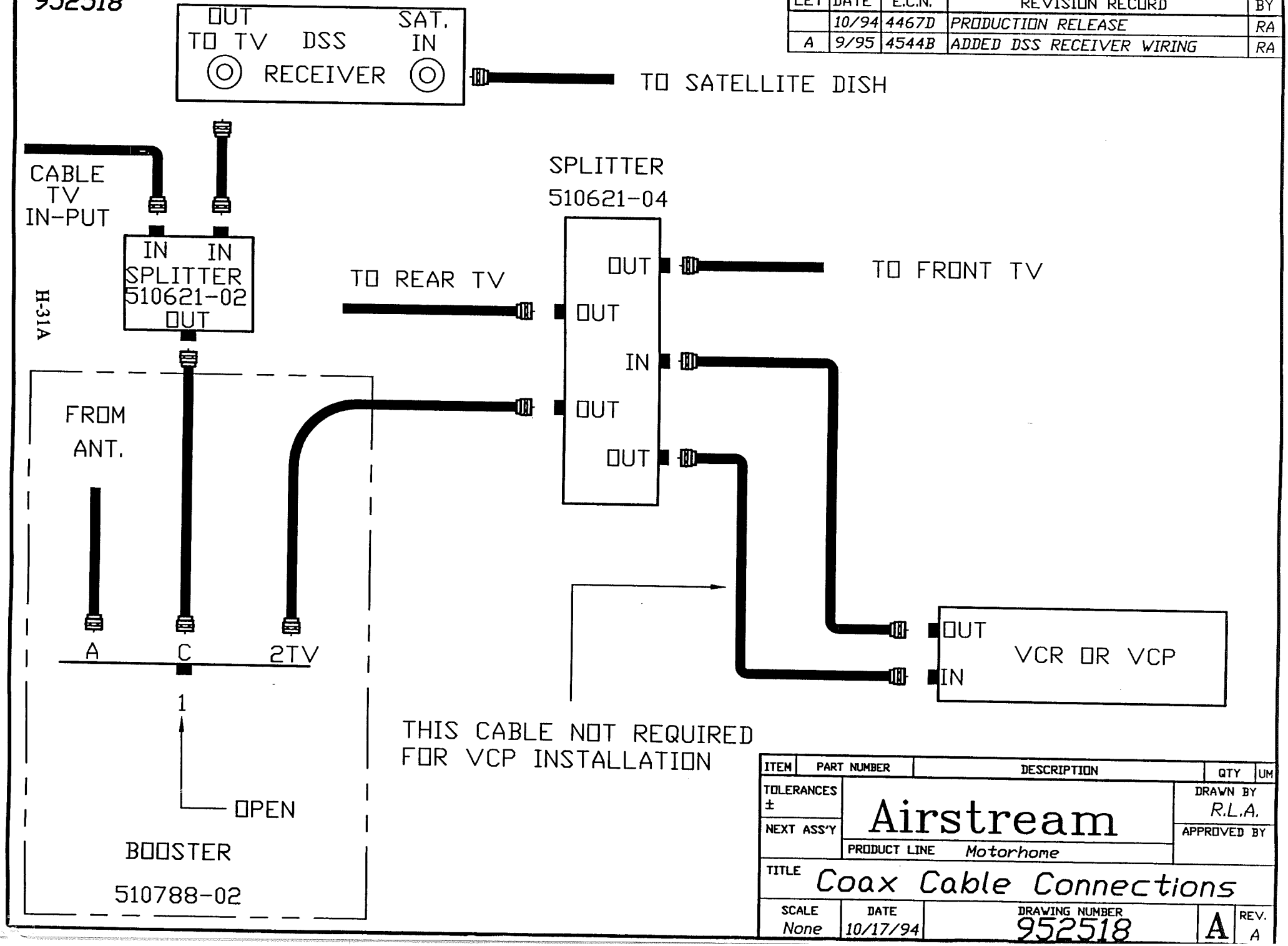
They are:

Black	12 gauge	ground	terminates at batteries
*Red	12 gauge	positive	terminates at batteries
Green	14 gauge		coiled in exterior refrigerator compartment
Yellow	14 gauge		coiled in exterior refrigerator compartment

*If solar panels installed, code requires a 10 amp in-line fuse be installed in this wire.

952518

LET	DATE	E.C.N.	REVISION RECORD	BY
	10/94	4467D	PRODUCTION RELEASE	RA
A	9/95	4544B	ADDED DSS RECEIVER WIRING	RA



ITEM	PART NUMBER	DESCRIPTION	QTY	UM

TOLERANCES ±	Airstream	DRAWN BY R.L.A.
NEXT ASS'Y	PRODUCT LINE Motorhome	APPROVED BY
TITLE	Coax Cable Connections	
SCALE None	DATE 10/17/94	DRAWING NUMBER 952518 A REV. A

Winegard Satellite Dish
3000 Kirkwood Street
Burlington, IA 52601
1-800-788-4417

As with most new electronic equipment the operation can be complicated and confusing the first time it's used. The following directions provided by Winegard and RCA are clear and can soon become routine. Further information can be found in their "packets" contained in this notebook.

RV MANUAL DIGITAL SATELLITE SYSTEM WITH RCA RECEIVER
Quick Reference Guide

NOTE: VEHICLE SHOULD BE LEVEL BEFORE SEARCHING FOR THE SATELLITE. CHARTS AND ANGLES ARE BASED ON VEHICLE BEING LEVEL.

OPERATION

STEP 1: Using a compass, determine which direction is North. **It is recommended that you step outside and a few steps away from your vehicle to perform this step. The coach/RV can give you an incorrect reading.**

STEP 2: Loosen the clamping knob. Figure 1.

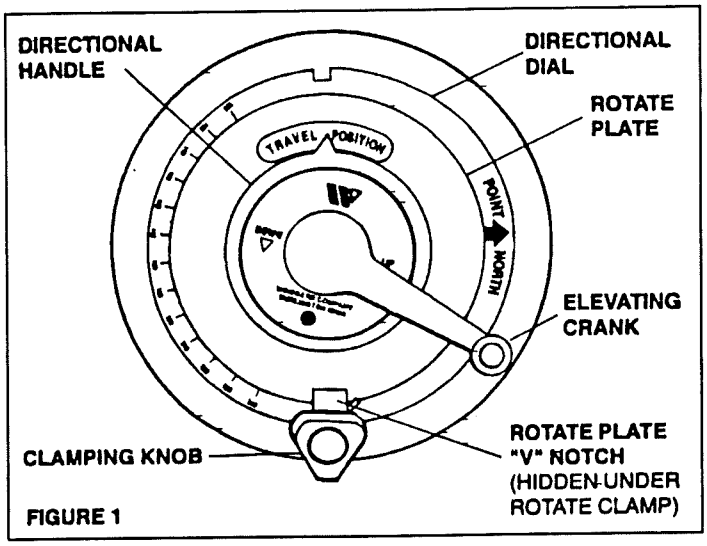


FIGURE 1

STEP 3: Rotate directional dial (Figure 1) until the arrow is pointing North.

STEP 4: Turn elevating crank (clockwise) in "UP" direction about 13 turns or until some resistance is met. (Antenna is in fully raised position.)

STEP 5: Turn TV and receiver ON.

STEP 6: Tune TV to ch. 3 or 4.

STEP 7: Press DSS on receiver remote.

STEP 8: Press MENU on receiver remote. Fig. 2.

DSS Main Menu Use the arrows to point to an item: then press SELECT. Pressing the number also selects the item.
1 Program Guide
2 Attractions
3 Mailbox
4 Options
5 Alternate Audio
6 Help
0 Exit

STEP 9: Select #4 Options. Figure 3

OPTIONS
Point to a menu item and press SELECT.
Pressing the number also selects the item.

1 Past Purchases
2 Upcoming Purchases
3 Locks, Limits, and Channel Lists
4 Select channel List
5 Setup
0 Exit

FIGURE 3

STEP 10: Select #5 Setup. Figure 4

SETUP
Point to a menu item and press SELECT.
Pressing the number also selects the item.

1 System Test
2 Dish Pointing
3 Install Access Card
4 Picture Size
0 Exit

FIGURE 4

STEP 11: Select # 2 Dish Pointing. Figure 5

DISH POINTING
Point to a menu item and press SELECT.
Pressing the number also selects the item.

1 Point Dish Using Your ZIP Code
2 Point Dish Using Latitude and Longitude
3 Signal Meter
0 Exit

FIGURE 5

STEP 12: Select #1 Point Dish Using ZIP Code.

STEP 13: Enter ZIP code, Press SELECT The azimuth and elevation required for your location will be displayed. Write them down.

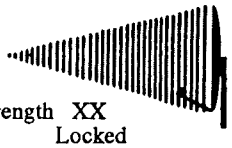
STEP 14: Press SELECT to return to Dish Pointing menu.

NOTE: THIS SYSTEM RECOMMENDED FOR USE WITHIN THE CONTINENTAL U.S. ONLY!

STEP 15: Press #3 Signal Meter. Figure 6

SIGNAL METER
When you are done press SELECT.

Weak **Strong**



Restart
Exit
Xpndr
Help

Signal Strength XX
Signal Locked
Transponder number 0 2

FIGURE 6

STEP 16: Refer to Table 1 and turn elevation crank counter clockwise (CCW) the number of turns indicated to get the elevation shown by the receiver.

STEP 17: Turn directional handle until "V" notch in rotate plate is pointing in direction indicated by the receiver. Example: If receiver says point antenna at 145°, then rotate directional handle so that "V" notch in rotate plate is pointing at 145° on the directional dial.

TUNING ANTENNA FOR BEST PICTURE

STEP 18: Your receiver should indicate it is receiving a signal. To tune your antenna for the best signal, **slowly** move the antenna left/right in 3° increments as indicated on the Signal Meter menu. Stop when you have found the position that gives the highest signal strength. ***It is important to stop and wait after each antenna movement of 3°. Since the signal is digital the receiver takes a few seconds to lock on.***

NOTE: If the receiver indicates no signal, check that you have clear view (no obstructions) of the satellite. If you have a clear view, then raise the antenna 1/2 turn and repeat step 18. If still no signal, lower antenna 1 turn and repeat step 18.

STEP 19: Tighten the clamping knob. This prevents the antenna from moving and losing the signal.

STEP 20: Slowly raise then lower the antenna until you have peaked the signal.

STEP 21: Press CLEAR to return to picture.

STEP 22: Press GUIDE for program listings. **You are now ready to watch satellite TV!**

ELEVATION	TURNS CCW
24 - 26°	NONE
27 - 29°	1/2
30 - 32°	1
33 - 36°	1-1/2
37 - 39°	2
40 - 43°	2-1/2
44 - 46°	3
47 - 50°	3-1/2
51 - 53°	4
54 - 57°	4-1/2
58 - 60°	5
61 - 64°	5-1/2
65 - 67°	6

TABLE 1

LOWERING ANTENNA TO TRAVEL POSITION

STEP 1: Loosen the clamping knob.

STEP 2: Rotate antenna until pointer on directional handle aligns with pointer on ceiling plate.

STEP 3: Turn elevating crank (counter clockwise) in "DOWN" direction about 13 turns or until resistance is met.

STEP 4: Tighten the clamping knob. Antenna is now locked in travel position.

CAUTION: UNDER NO CONDITIONS LOWER ANTENNA IN ANY POSITION EXCEPT TRAVEL POSITION.

WINEGARD®
Clearly the World's Best®

MAINTENANCE

MOUNT LUBRICATION

To lubricate the mount, apply a liberal amount of silicone spray lubricant to the elevating gear and between the gear housing and baseplate. Run the antenna up/down and rotate the antenna to distribute the lubricant. See Figure 6.

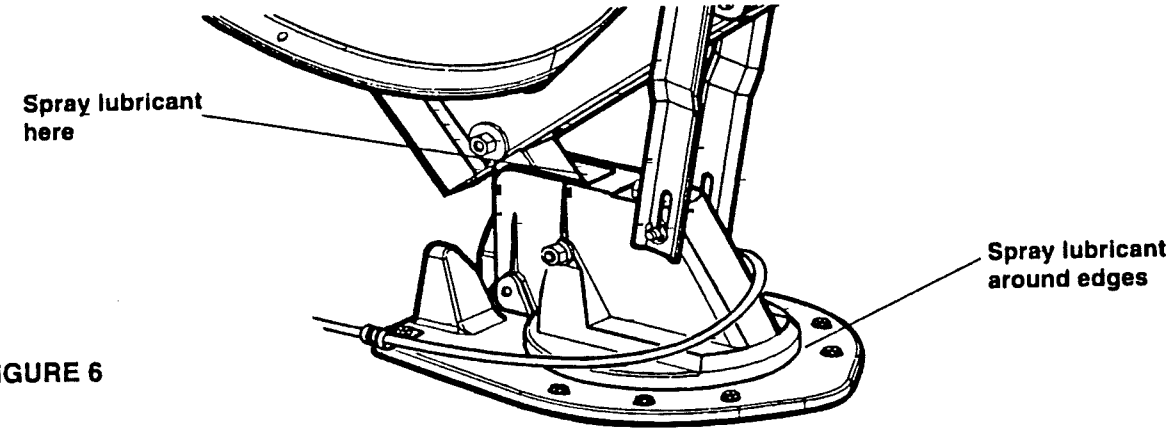


FIGURE 6

LUBRICATING RUBBER QUAD RING

Lubricate rubber quad ring on elevating shaft which is below worm gear with silicone spray lubricant at least twice yearly (Figure 7). This will keep quad ring from becoming brittle which could result in leaks down elevating shaft.

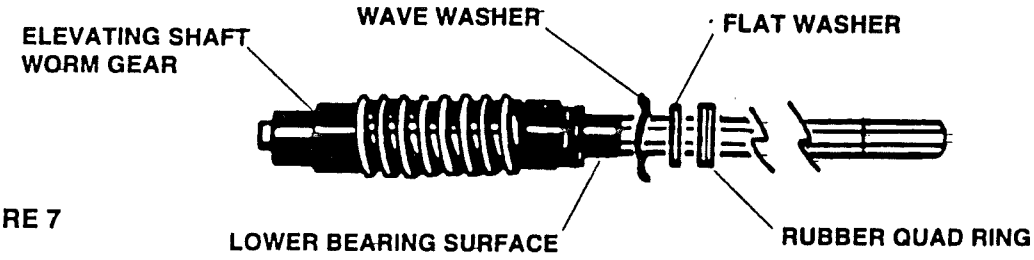


FIGURE 7

ELEVATING SHAFT & WORM GEAR ASSEMBLY REPLACEMENT PROCEDURE

NOTE: It is not necessary to remove rotating gear housing from base plate or remove antenna from roof to replace the shaft & worm gear assembly.

STEP 1: Lower antenna to travel position. Loosen set screw on elevating crank, remove crank, spring, directional handle. Parts list page 10.

STEP 2: Remove E-clip from pin holding elevating tube in rotating gear housing and remove pin. Parts list page.

STEP 3: Remove plastic plug from top of rotating gear housing, disengage elevating gear, remove elevating shaft assembly. Parts list page 10.

STEP 4: Lubricate worm gear assembly on new elevating shaft assembly with spray silicone lubricant. Make sure wave washer, flat washer and quad ring are on lower bearing (Figure 7) and insert assembly in housing.

STEP 5: Reinstall plastic plug in top of housing. Gears will mesh automatically once elevating crank is turned.

STEP 6: Replace directional handle, spring and elevating crank. Make sure set screw contacts flat surface on shaft before tightening.

110 VOLT POWER

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

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

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

GENERATOR

Using the generator is very much like plugging into an external power source. Simply plug your power cord into the receptacle in the power cord storage compartment and the generator will provide operating current whenever it's running.

If you get in the habit of plugging the cord into this receptacle when storing, your generator will always be ready to use.

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

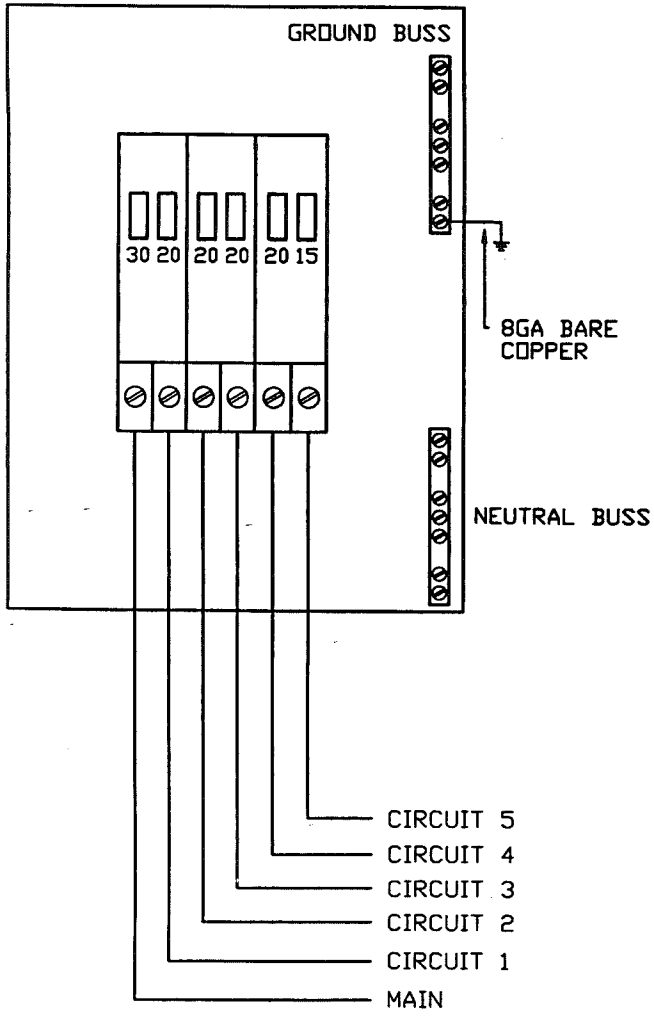
AIR CONDITIONER

Because of the amount of power drawn by the air conditioners, it is only possible to operate one at a time when plugged into city power. A wall switch, located above the kitchen counter, allows you to operate either the front or rear air conditioner, but not both at the same time.

Both air conditioners may be operated when the generator is running. Set the priority switch to the front air conditioner and it is powered through the normal circuit. The generator powers the rear air conditioner through a separate circuit.

Another appliance drawing a lot of current is the microwave. Operating the microwave and an air conditioner at the same time will put your electrical system at the edge of maximum draw. If the air conditioner goes into a "start up" cycle, the additional current will probably cause your main circuit breaker to kick out. If this situation occurs it is best to leave the air conditioner off for the few minutes the microwave is normally operated.

952522



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 AND CONVERTER.

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

CIRCUIT 4, 20 AMP HACR BREAKER, 12-2 ROMEX W/GROUND, COFFEE MAKER AND TOASTER OVEN. (GFI RECEPT).

CIRCUIT 5, 15 AMP HACR BREAKER, 12-2 ROMEX W/GROUND, BATH (GFI RECEPT), REFER, DINETTE, GALLEY, FRONT TV AND CREDENZA.

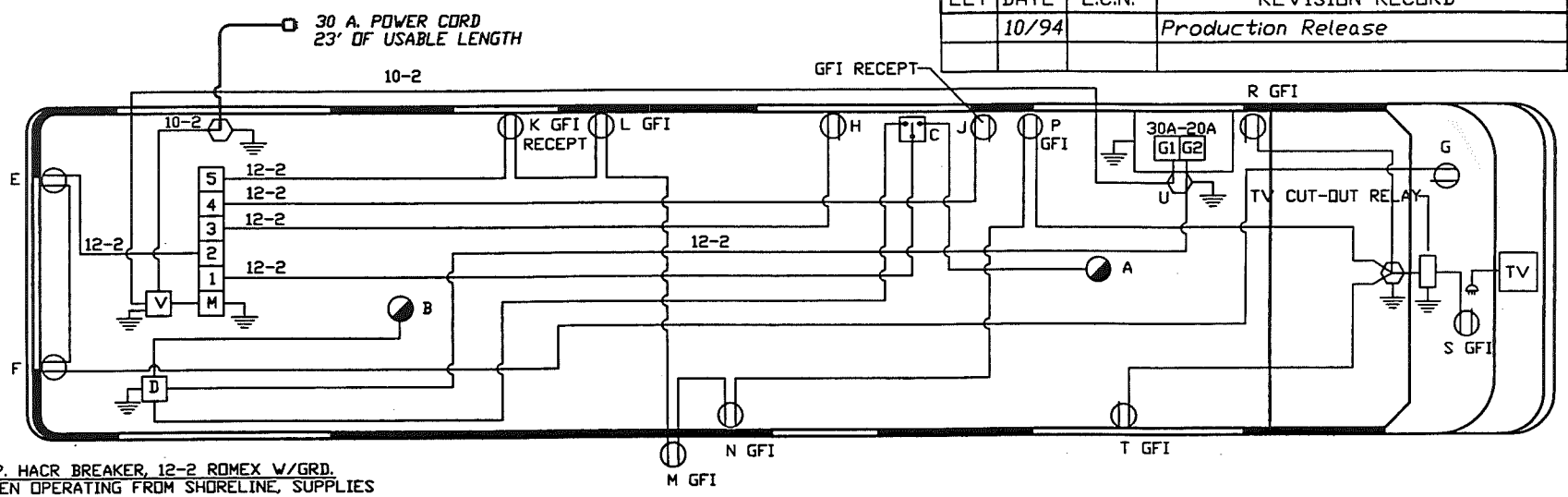
USAGE:

ALL MOTORHOMES WITH 30 AMP. POWER SUPPLY.

ITEM	PART NUMBER	DESCRIPTION	QTY	UM
TOLERANCES ±		Airstream	DRAWN BY J.C.	
NEXT ASS'Y		PRODUCT LINE SEE NOTE	APPROVED BY	
TITLE 30 AMP. BREAKER PANEL				
SCALE NONE	DATE 11-03-94	DRAWING NUMBER 952522	B	REV.

952521

LET	DATE	E.C.N.	REVISION RECORD	BY
	10/94		Production Release	TC



CIRCUIT 1, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.
THIS CIRCUIT, WHEN OPERATING FROM SHORELINE, SUPPLIES POWER TO SINGLE POLE, DOUBLE THROW SWITCH "C" WHICH WILL OPERATE EITHER FRONT A/C "A" OR REAR A/C "B" (16 AMP MAX.) DEPENDING ON THE SWITCH POSITION. WHEN THE GENERATOR IS OPERATING, AUTOMATIC SWITCHOVER RELAY "D" WILL OVERRIDE SHORELINE AND OPERATE REAR A/C "B" WITH POWER SUPPLIED THROUGH GENERATOR CIRCUIT G-2. IF THE PRIORITY SWITCH IS IN THE FRONT A/C POSITION, IT WILL OPERATE FRONT A/C "A" WITH POWER SUPPLIED FROM GENERATOR CIRCUIT G-1.

CIRCUIT 2, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

E. ROADSIDE BEDROOM RECEPT	1.0 AMPS.
F. CURBSIDE BEDROOM RECEPT	1.0 AMPS.
G. CONVERTER RECEPT	8.0 AMPS.
TOTAL	10.0 AMPS.

CIRCUIT 3, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

H. MICROWAVE OVEN RECEPT	12.0 AMPS.

CIRCUIT 4, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

J. COFFEE MAKER (GFI RECEPT)	7.2 AMPS.

CIRCUIT 5, 15 AMP. HACR BREAKER, 12-2 ROMEX W/GRD

K. BATH-GFI RECEPT	1.0 AMPS.
L. REFER RECEPT	2.7 AMPS.
M. OUTSIDE RECEPT	1.0 AMPS
N. DINETTE RECEPT	1.0 AMPS
P. GALLEY RECEPT	1.0 AMPS
R. VCR RECEPT	0.5 AMPS
S. FRONT TV W/IGNITION INTERLOCK	0.7 AMPS.
T. CREDENZA RECEPT	1.0 AMPS.
TOTAL	8.9 AMPS.

GEN. CIRCUIT G-1. FROM THE GENERATOR 30A BREAKER, 10 GA. STRANDED WIRE IS RUN IN FLEXIBLE METAL CONDUIT TO J-BOX "U". FROM THERE, 10-2 ROMEX W/GRD. IS RUN TO THE BREAKER BOX THROUGH AUTOMATIC SWITCH-OVER RELAY "V."

GEN. CIRCUIT G-2. FROM THE GENERATOR 20 AMP. BREAKER, 12 GA. STRANDED WIRE IS RUN IN FLEXIBLE METAL CONDUIT TO J-BOX "U." FROM THERE, 12-2 ROMEX W/GRD. IS RUN TO AUTOMATIC SWITCHOVER RELAY "D" WHICH WILL OVERRIDE SHORELINE AND OPERATE REAR A/C "B."

ITEM	PART NUMBER	DESCRIPTION	QTY	UM

TOLERANCES ±

NEXT ASS'Y

Airstream

PRODUCT LINE 30' L/Y BUS

DRAWN BY T.C.

APPROVED BY

TITLE 110V. Lay-out

SCALE 1=32

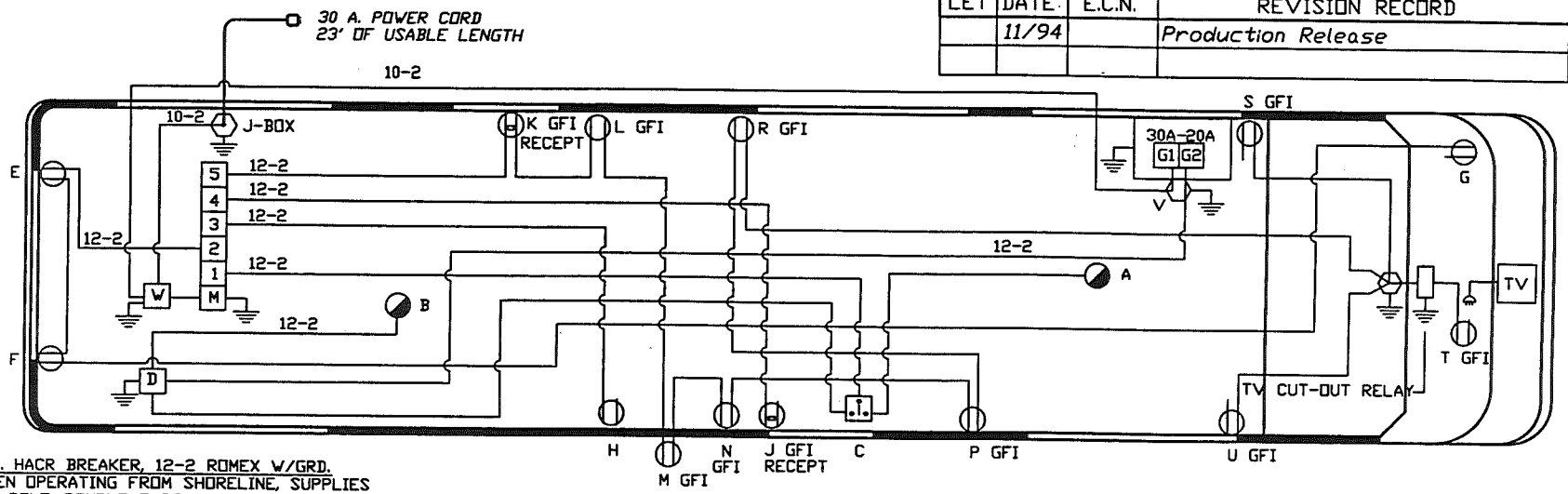
DATE 10/24/94

DRAWING NUMBER 952521

REV. B

952529

LET	DATE	E.C.N.	REVISION RECORD	BY
	11/94		Production Release	TC



CIRCUIT 1, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.
THIS CIRCUIT, WHEN OPERATING FROM SHORELINE, SUPPLIES POWER TO SINGLE POLE, DOUBLE THROW SWITCH "C" WHICH WILL OPERATE EITHER FRONT A/C "A" OR REAR A/C "B" (16 AMP MAX.) DEPENDING ON THE SWITCH POSITION. WHEN THE GENERATOR IS OPERATING, AUTOMATIC SWITCHOVER RELAY "D" WILL OVERRIDE SHORELINE AND OPERATE REAR A/C "B" WITH POWER SUPPLIED THROUGH GENERATOR CIRCUIT G-2.

CIRCUIT 2, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

E. ROADSIDE BEDROOM RECEPT	1.0 AMPS.
F. CURBSIDE BEDROOM RECEPT	1.0 AMPS.
G. CONVERTER RECEPT	8.0 AMPS.
TOTAL	10.0 AMPS.

CIRCUIT 3, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

H. MICROWAVE OVEN RECEPT	12.0 AMPS.

CIRCUIT 4, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

J. COFFEE MAKER & TOASTER OVEN (GFI RECEPT)	14.7 AMPS.

CIRCUIT 5, 15 AMP. HACR BREAKER, 12-2 ROMEX W/GRD

K. BATH (GFI 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. DINETTE RECEPT	1.0 AMPS
S. VCR	0.5 AMPS
T. FRONT TV W/IGNITION INTERLOCK	0.7 AMPS.
U. CREDENZA RECEPT	1.0 AMPS.
TOTAL	9.9 AMPS.

NOTE: GFI RECEPT "K" PROTECTS RECEPTS DOWNSTREAM.

GEN. CIRCUIT G-1. FROM THE GENERATOR 30A BREAKER, 10 GA. STRANDED WIRE IS RUN IN FLEX. MOISTURE-PROOF, PLASTIC CONDUIT TO J-BOX "V." FROM THERE, 10-2 ROMEX W/GRD. IS RUN TO THE BREAKER BOX THROUGH AUTOMATIC SWITCH-OVER RELAY "W".

GEN. CIRCUIT G-2. FROM THE GENERATOR 20 AMP. BREAKER, 12 GA. STRANDED WIRE IS RUN IN FLEX. MOISTURE-PROOF, PLASTIC CONDUIT TO J-BOX "V." FROM THERE, 12-2 ROMEX W/GRD. IS RUN TO AUTOMATIC SWITCHOVER RELAY "D" WHICH WILL OVERRIDE SHORELINE AND OPERATE REAR A/C "B."

ITEM	PART NUMBER	DESCRIPTION	QTY	UM

TOLERANCES ±

NEXT ASS'Y

Airstream

PRODUCT LINE 36'SB L.YACHT BUS

DRAWN BY T.C.

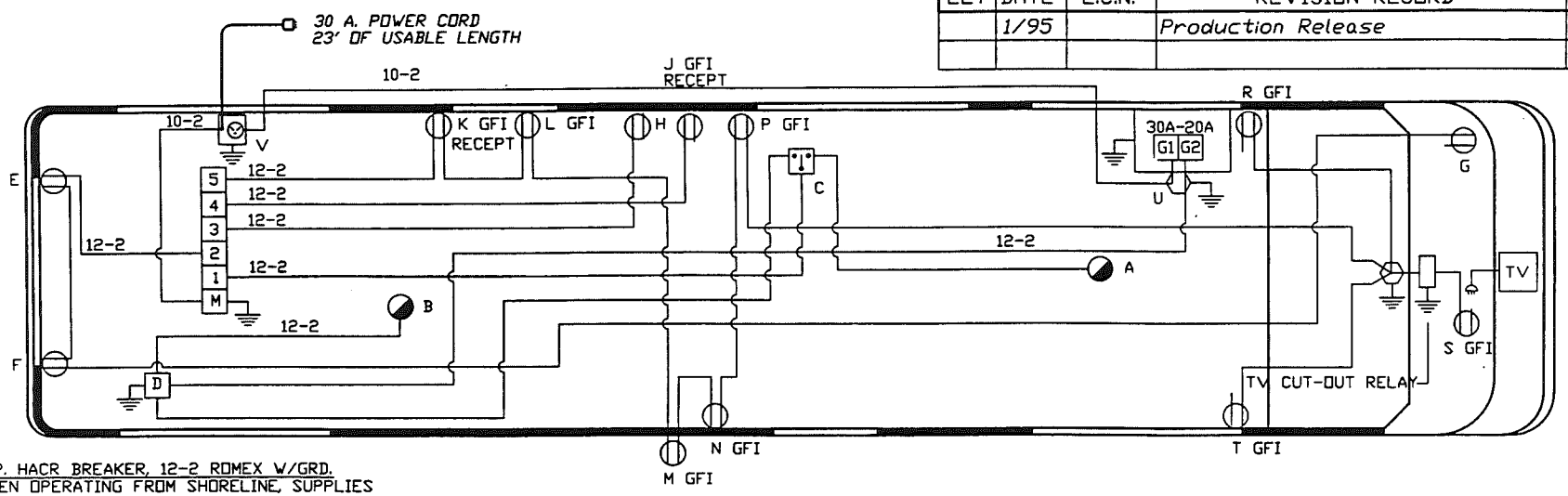
APPROVED BY

TITLE 110V. Lay-out, 30 AMP.

SCALE	DATE	DRAWING NUMBER	REV.
1=32	11/07/94	952529	B

952525

LET	DATE	E.C.N.	REVISION RECORD	BY
	1/95		Production Release	TC



CIRCUIT 1, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.
THIS CIRCUIT, WHEN OPERATING FROM SHORELINE, SUPPLIES POWER TO SINGLE POLE, DOUBLE THROW SWITCH 'C' WHICH WILL OPERATE EITHER FRONT A/C 'A' OR REAR A/C 'B' (16 AMP MAX.) DEPENDING ON THE SWITCH POSITION. WHEN THE GENERATOR IS OPERATING, AUTOMATIC SWITCHOVER RELAY 'D' WILL OVERRIDE SHORELINE AND OPERATE REAR A/C 'B' WITH POWER SUPPLIED THROUGH GENERATOR CIRCUIT G-2.

CIRCUIT 2, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

E. ROADSIDE BEDROOM RECEPT	1.0 AMPS.
F. CURBSIDE BEDROOM RECEPT	1.0 AMPS.
G. CONVERTER RECEPT	8.0 AMPS.
TOTAL	10.0 AMPS.

CIRCUIT 3, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

H. MICROWAVE OVEN RECEPT	12.0 AMPS.

CIRCUIT 4, 20 AMP. HACR BREAKER, 12-2 ROMEX W/GRD.

J. COFFEE MAKER (GFI RECEPT)	7.2 AMPS.

CIRCUIT 5, 15 AMP. HACR BREAKER, 12-2 ROMEX W/GRD

K. BATH (GFI RECEPT)	1.0 AMPS.
L. REFER RECEPT	2.7 AMPS.
M. OUTSIDE RECEPT	1.0 AMPS
N. DINETTE AREA RECEPT	1.0 AMPS
P. GALLEY RECEPT	1.0 AMPS
R. VCR	0.5 AMPS
S. FRONT TV W/IGNITION INTERLOCK	0.7 AMPS.
T. PASSENGER AREA RECEPT	1.0 AMPS.
TOTAL	8.9 AMPS.

GEN. CIRCUIT G-1. FROM THE GENERATOR 30A BREAKER, 10 GA. STRANDED WIRE IS RUN IN FLEX. MOISTURE-PROOF, PLASTIC CONDUIT TO J-BOX 'U.' FROM THERE, 10-2 ROMEX W/GRD. IS RUN TO OUTLET/JUNCTION BOX 'V'. IF THE CUSTOMER WISHES TO RUN HIS UNIT FROM GEN. POWER, HE PLUGS IN THE POWER CORD INTO THE 30 AMP. OUTLET IN BOX 'V'. BOX 'V' IS A 30 CU. IN. LISTED BOX WITH AN ADDITIONAL 7.5 CU. IN. OF COVER PLATE.

GEN. CIRCUIT G-2. FROM THE GENERATOR 20 AMP. BREAKER, 12 GA. STRANDED WIRE IS RUN IN FLEX. MOISTURE-PROOF, PLASTIC CONDUIT TO J-BOX 'U.' FROM THERE, 12-2 ROMEX W/GRD. IS RUN TO AUTOMATIC SWITCHOVER RELAY 'D' WHICH WILL OVERRIDE SHORELINE AND OPERATE REAR A/C 'B.'

ITEM	PART NUMBER	DESCRIPTION	QTY	UM

TOLERANCES ±

NEXT ASS'Y

Airstream

PRODUCT LINE 34'SB L.YACHT LE BUS

DRAWN BY T.C.

APPROVED BY

TITLE 110V. Lay-out, 30 AMP.

SCALE	DATE	DRAWING NUMBER	REV.
1=32	11/07/94	952525	B

LOCATING SHORTS AND OPENS

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

SHORTS

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

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

OPENS

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

NOTES

APPLIANCES

AIR CONDITIONER

Manufacturer: Dometic Sales Corporation
2320 Industrial Parkway
P.O. Box 490
Elkhart, IN 46515
Phone: 219-295-5228

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

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

Because of the amount of power drawn by the air conditioners, it is only possible to operate one at a time when plugged into city power. A wall switch, located above the kitchen counter, allows you to operate either the front or rear air conditioner, but not both at the same time.

Another appliance drawing a lot of current is the microwave. Operating the microwave and an air conditioner at the same time will put your electrical system at the edge of maximum draw. If the air conditioner goes into a "start up" cycle, the additional current will probably cause your main circuit breaker to kick out. If this situation occurs it is best to leave the air conditioner off for the few minutes the microwave is normally operated.

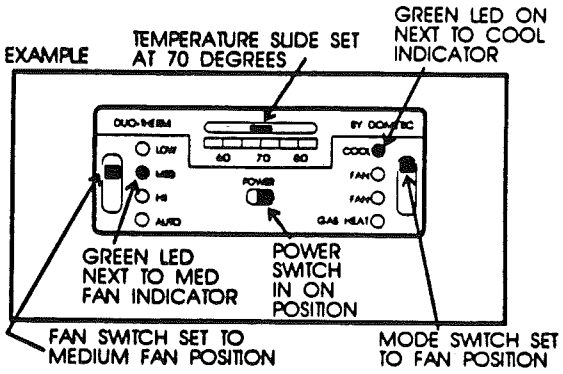
Both air conditioners may be operated when the generator is running. Set the priority switch to the front air conditioner and it is powered through the normal circuit. The generator powers the rear air conditioner through a separate circuit.

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

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

OPERATING INSTRUCTIONS, BRISK AIR

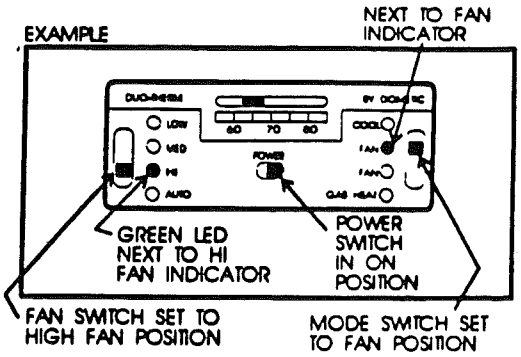
A. COOLING MODE OPERATION



1. Turn POWER switch to ON position.
2. Place mode switch COOL position.
3. Set temperature slide switch to your desired temperature level.
4. Select your desired fan speed. NOTE: See Special Features Section D. 1 for AUTO fan operation.
5. The fan starts immediately and after a delay of approximately two minutes, the compressor will start.
6. The compressor will now cycle OFF per the thermostat set point. The fan will:
   a. Continue to operate in the selected fan speed if AUTO Fan position is **NOT** selected.
   b. Cycle OFF and ON with the compressor cycle if AUTO Fan Position is selected.

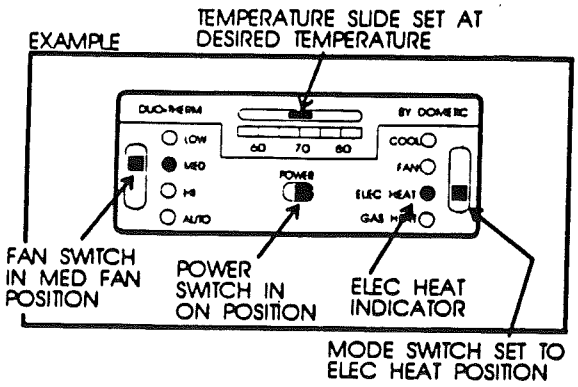
The compressor (and fan) will restart in approximately two minutes after the thermostat senses need for cooling.

B. FAN MODE OPERATION



1. Turn POWER switch to ON position.
2. Place MODE switch in either FAN position.
3. Select the desired fan speed: HI-MED-LOW-AUTO. NOTE: in AUTO position the fan operates only at low speed in FAN mode of operation.

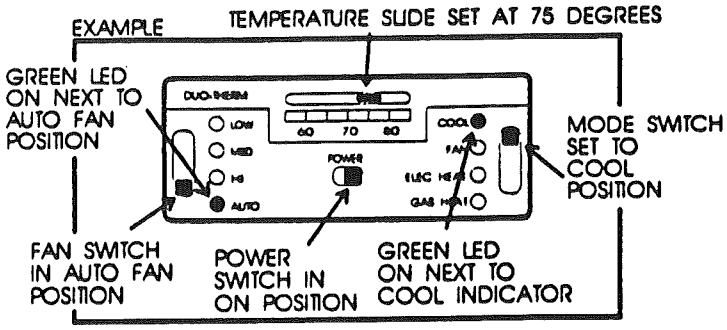
C. ELECTRIC HEAT MODE OPERATION (If So Equipped)



1. Turn POWER switch to ON position.
2. Place mode switch in ELEC HEAT position.
3. Set temperature slide switch to your desired temperature level.
4. Select your desired fan speed HI-MED-LOW-AUTO) NOTE: in AUTO position the fan operates only at low speed in ELEC HEAT mode of operation.
6. The fan will now:
   a. Cycle ON and OFF with Electric Heater when Fan Switch is in Auto Position.
   b. Run continuously when Fan Switch is in HI-MED-LOW position

D. SPECIAL CONTROL FEATURES

1. **Auto Fan Position:** (Cooling Mode Only)
   When air conditioner is in cooling mode of operation and this position is selected, the following will happen:
   a. Fan speed is automatically selected depending on the difference between user set temperature and room temperature as follows:
      8° or more - Fan operates on HIGH
      4° or 8° - Fan operates on MEDIUM
      4° or Below - Fan operates on LOW
   b. Fan will cycle ON and OFF with compressor. Any change of any switch on thermostat will cause fan to come on.
2. **Refrigerant Compressor Time Delay:**
   The compressor will always have a delay in staring of approximately two minutes any time it is required to begin the cooling cycle.
3. **Power Interruption:**
   In the event power to the air conditioner is interrupted for any reason, the system will restart in the condition previously set by user.



MAINTENANCE

Air Filter: Periodically remove the return air filter. Wash the filter with soap and warm water, let dry and then reinstall or replace as required.

NOTE: Never run the air conditioner without return air filter in place. This may plug the unit evaporator coil with dirt and may substantially affect the performance of the unit.

SERVICE - Unit Does Not Operate

If your unit fails to operate or operates improperly, check the following before calling your service center:

A. If RV is connected to motor generator, check to be sure motor generator is running and producing power.

B. If RV is connected to power supply by a land line, check to be sure line is sized properly to run air conditioner load and it is plugged into power supply.

C. Check your 115 VAC fuse or circuit breaker to see if it is open.

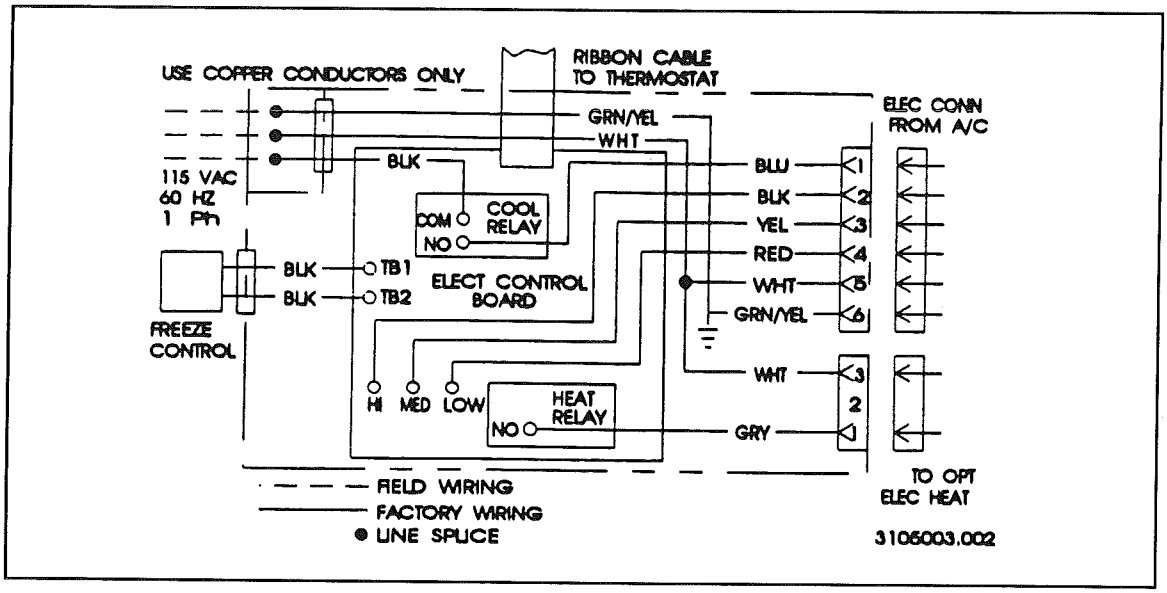
D. Check your 12 VDC fuse or circuit breaker to see if it is open.

E. After the above checks, call your local service center for further help. This unit must be serviced by qualified service personnel only.

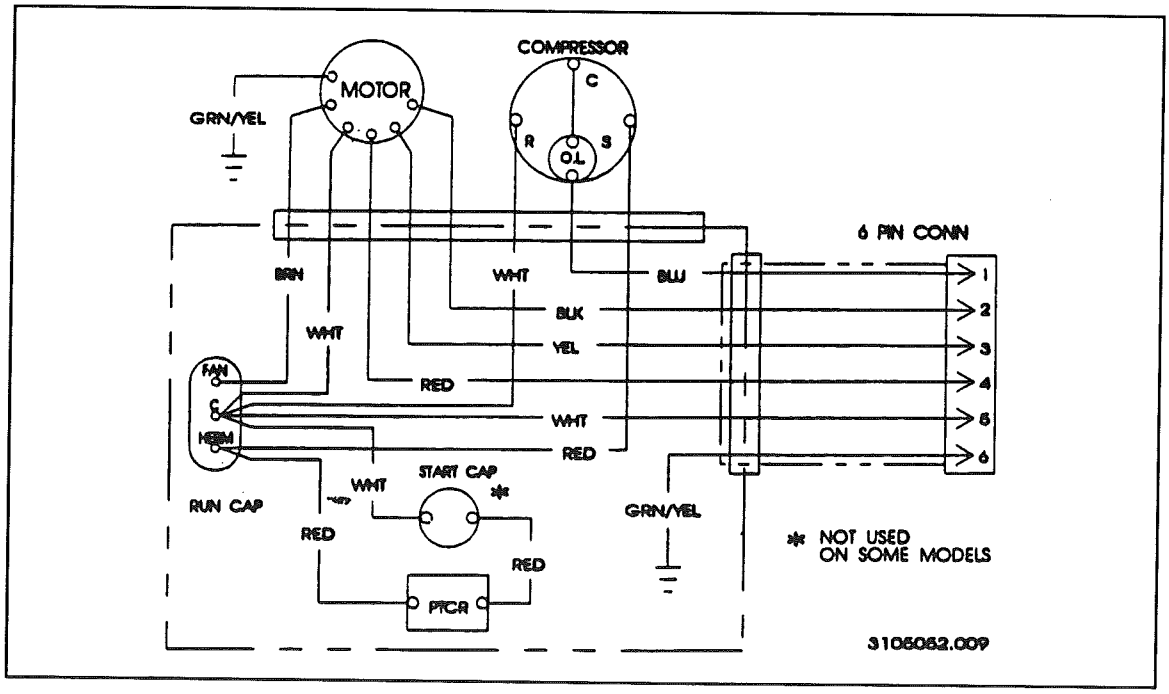
When calling for service, always give the following:
   a. Air Conditioner Model Number and Serial Number found on Rating Plate located on Base Pan of Air Conditioner.
   b. Electronic Control Kit Part Number and Serial Number found on Rating Plate located on side of Kit.

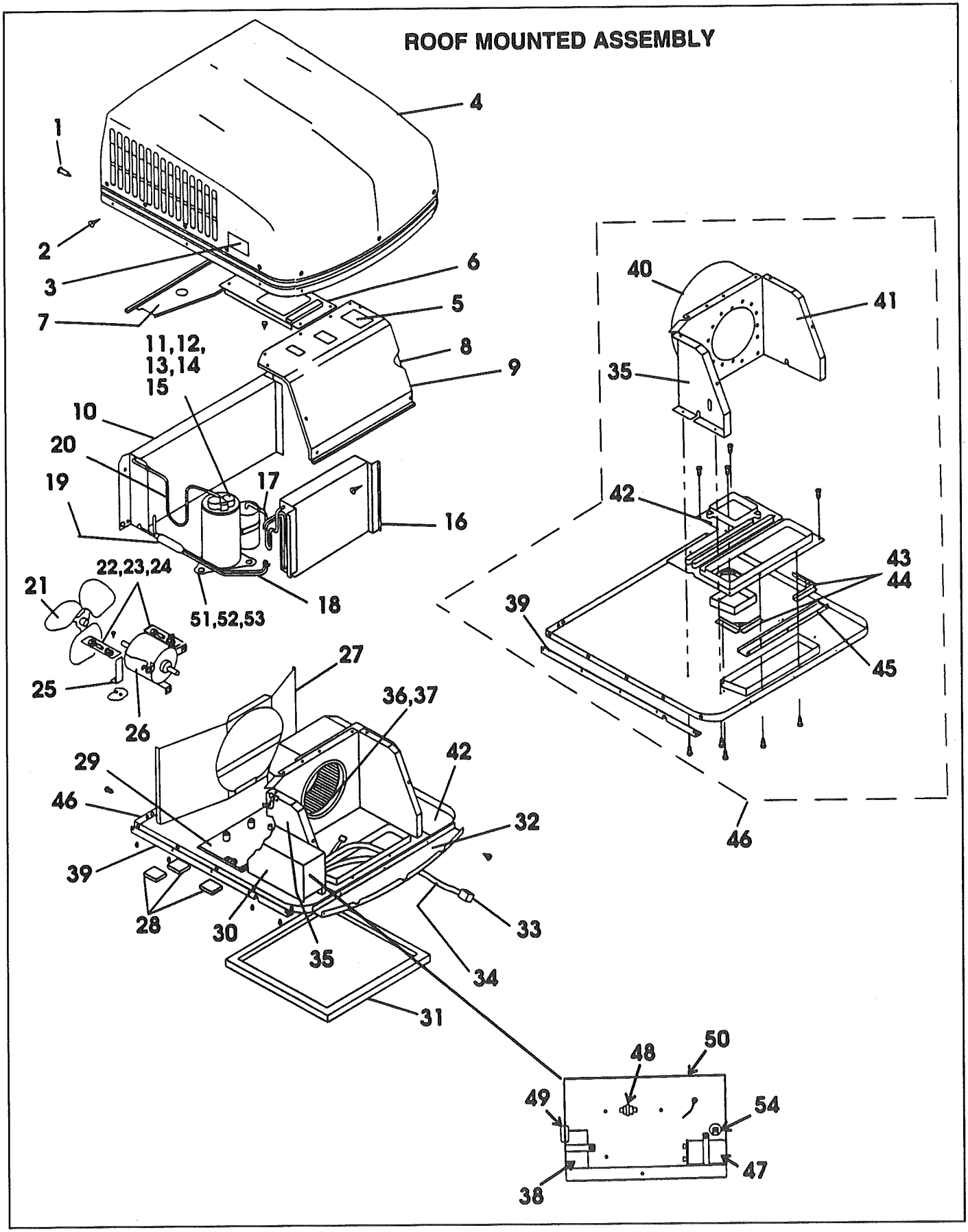
RETURN AIR GRILLE MUST BE REMOVED FROM RETURN AIR COVER TO VIEW THESE RATING PLATES.

ELECTRONIC FIELD WIRING DIAGRAM



UNIT FIELD WIRING DIAGRAM




ROOF MOUNTED ASSEMBLY
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PARTS DESCRIPTION FOR PRECEDING PAGE

1. Screw, shoulder (2 req.)
2. Screw, shroud (12 req.)
3. Decal, shroud (2 req.)
4. Shroud
5. Decal, field wiring
6. Cover, condenser
7. Bulkhead brace
8. Insulation, evap. cover
9. Cover, evaporator
10. Coil, condenser
11. Compressor asm.
    (Sanyo 8060842 - .321, 326)
    (Pava 2P19C3R126A-2A - .521)
    (Tecumseh RK1GOAT-024 - .621, 626)
12. Cover, terminal
13. Gasket, terminal
14. Overload
15. Nut, flange
16. Coil, evaporator
17. Line, suction
18. Tube, capillary (2 req.)
19. Filter drier
20. Line, discharge
21. Fan blade (plastic)
22. Grommet, motor (4 req.)
23. Spacer, motor (4 req.)
24. Nut, flange, motor (4 req.)
25. Support, motor kit
26. Motor, fan
27. Bulkhead, condenser
28. Foam blocks (7 req.)
29. Plate, compressor
30. Cover, elec. box
31. Gasket, 14 x 14
32. Channel, front
33. Plug, connection
34. Sleeving, wire
35. Insulation, (3 piece set)
36. Blower inlet ring
37. Wheel, blower
38. Start, capacitor
39. Bracket, base pan side
40. Housing, weld, blower
41. Bulkhead, evaporator
42. Drain, pan
43. Bracket, mounting (3 req.)
44. Nut with mtg. clip (3req.)
45. Brace, front
46. Pan, base
47. Capacitor, fan (run)
48. Relay, PTCR
49. Strain, relief
50. Box, elec.
51. Sleeve, compressor (3 req.)
52. Grommet, compressor (3 req.)
53. Nut, flange, compressor (3 req.)
54. Strain, relief

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.

Lighting Instructions

Read all safety related information before operating the furnace. This appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand. This furnace will operate at an elevation of 0 to 10,000 feet.

1. Set the thermostat to the lowest setting or turn the thermostat to the "OFF" position.

2. Wait (5) minutes to clear out any gas. If after 5 minutes you smell gas, **STOP**! Follow the safety information above. If you do not smell gas, go to the next step.

3. Set the thermostat to desired temperature setting and turn the thermostat to the "ON" position. Allow 40 to 60 seconds for the furnace to begin operating. (It may be necessary to set an RV thermostat to a higher setting than that in a home to achieve a comparable level of comfort. Opening an exterior door of an RV results in the rapid loss of interior heat.)

If the furnace does not light, repeat steps 1-3. If the furnace does not ignite after three attempts, turn the thermostat to "OFF" and call a qualified service technician or your gas supplier.

Furnace Components

WARNING: Service and repair procedures in the following text is intended for Qualified Service Personnel use only.

Blower Assembly

The blower assembly is powered by a 12 volt DC motor. Two wheels are used. One for circulating warm air and the other for providing combustion air. See Fig. 1. The blower motor is permanently lubricated and no oiling is required. However, the blower assembly, including blower wheels, should be cleaned every season to remove accumulations of dirt and lint.

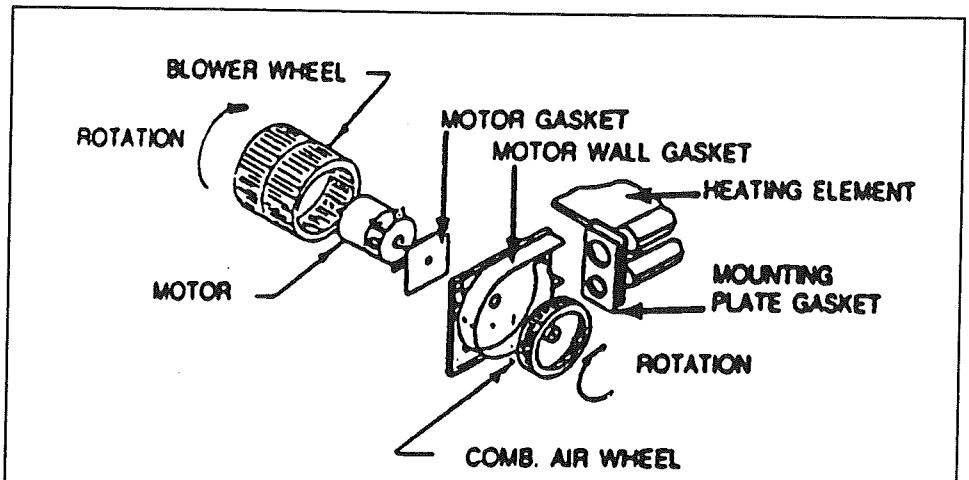


Fig. 1

Direct Spark Ignition Circuit Board

The circuit board is located on the back of the electrical panel just behind the front door. As shown in Fig. 2, it operates in conjunction with the ignitor assembly (located at the right side of the control box on the burner box assembly). To provide safe reliable ignition without the use of a standing pilot as described in the "Sequence of Operation" section, the circuit board provides an initial purge cycle of about 20 seconds. During this time only the blower runs so that any unburned gases are purged out of the heat exchanger, prior to ignition.

This purge cycle time is unique to the circuit board used by Hydro Flame and is not the same as most other circuit boards used by other manufacturers. Therefore, it is essential to use only the Hydro Flame Circuit Board if a replacement is required. Hydro Flame circuit board has a protective cover added to the assembly to give added protection from handling and moisture. See Fig. 2.

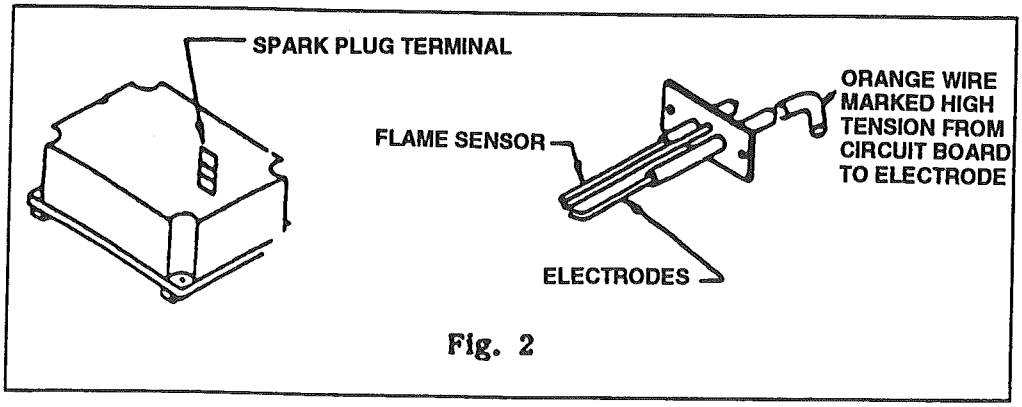


Fig. 2

The electrode assembly consists of two electrodes and one flame sensor probe. The spark produced by the circuit board to the electrodes ignites the burner after the purge cycle is completed. The flame sensor probe senses the heat from the burner and signals the circuit board to keep the gas valve open. If ignition does not occur so that the flame sensor does not sense heat, the circuit board will shut the gas valve off within 6 to 9 seconds.

Burner Assembly

To remove the burner assembly from the control box, first remove the draft shield assembly by opening the front door catches and unscrewing the wing nut located on the side of the combustion air housing cover and front screw. See Fig. 3. Next unscrew the manifold from the blower wall and remove the three (3) screws on the burner box.

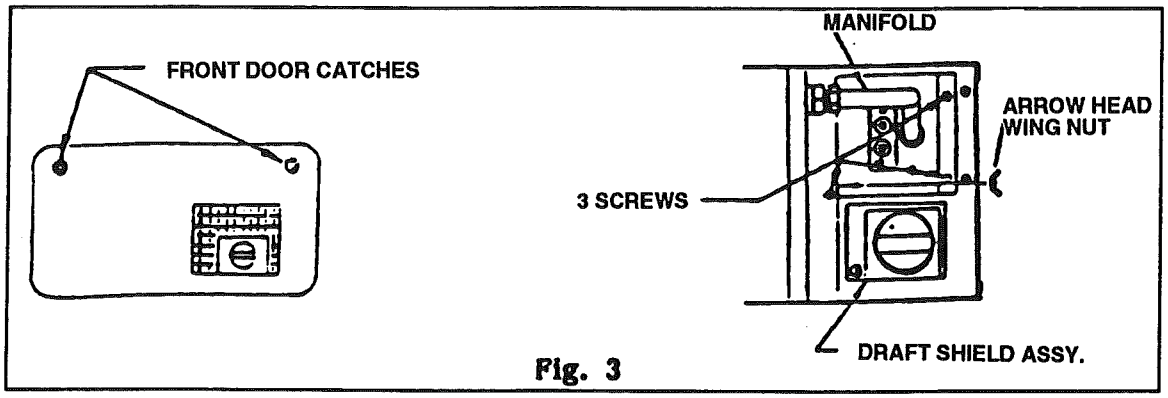


Fig. 3

Pull manifold to the right until manifold clears the brass fitting. Now remove burner assembly by pulling the manifold toward you and disconnecting the electrode wires.

CAUTION: When re-installing the burner assembly make sure the two screws on the burner box flange are secure and not stripped.

Air Seal Gaskets

In order to prevent leakage of combustion air from the sealed system, there are gaskets in the following places. These gaskets must be in place and undamaged. See Fig. 4 for gasket locations.

1. Heat exchanger gasket.
2. Motor wall gasket.
3. Motor gasket.

Heat Element Assembly

The heat element assembly can be removed in order to service the exchanger or the heat element gasket. Follow the steps listed:

1. Turn off gas at LP tanks.
2. Disconnect gas line from left side of furnace.

WARNING: Fire or explosion may result when gas line is disconnected at the furnace and the gas bleeds out. Check all appliances which have a pilot still burning and extinguish them or any other flame source in the vicinity.

3. Unplug the electrical plastic disconnect plug from the left side of the furnace.
4. Remove six screws on the left inside of the control box and the two screws on the right inside of the control box. See Fig. 4.

5. Remove the twelve screws holding the front door on.

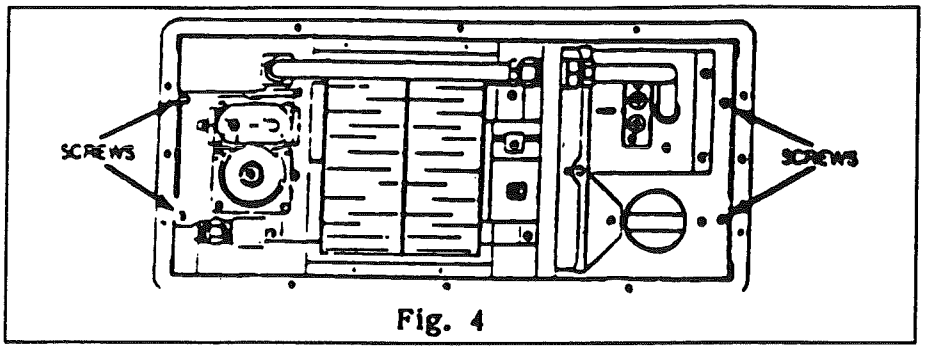
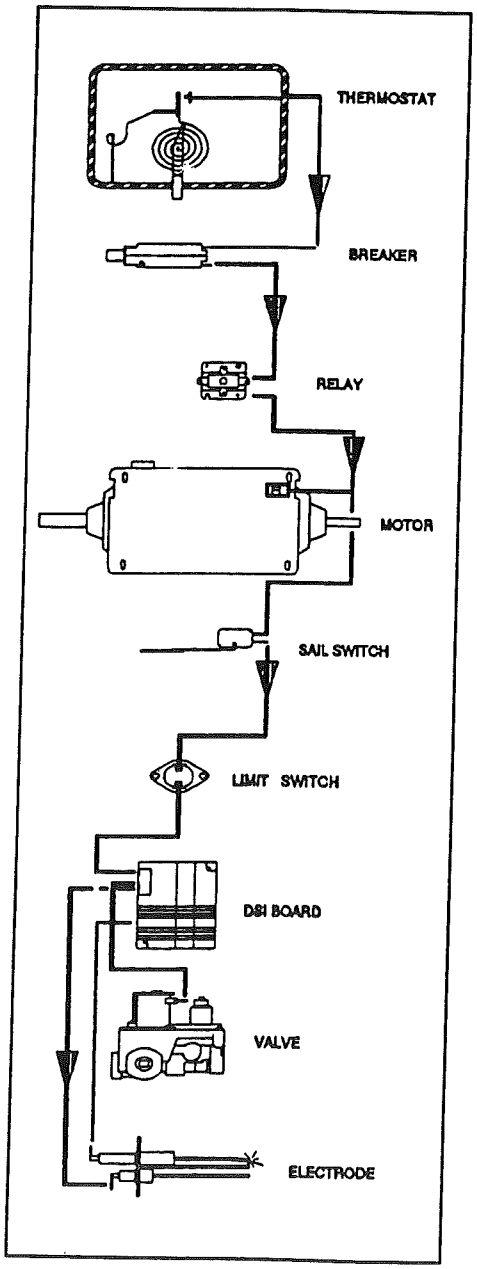


Fig. 4

6. Pull the entire control box assembly forward where it can now be serviced and bench tested.

7. Remove burner assembly as described earlier and remove three remaining screws holding element assembly to control box.

CAUTION: When re-installing heat element assembly and control box assembly, be sure all screws are firmly in place.



SEQUENCE OF OPERATION

The thermostat controls the operating circuit to the furnace by reacting to room temperature. When room temperature is below the thermostat set point, the contact closes to allow current to flow to the relay.

The circuit breaker limits amperage draw of the motor.

The relay allows current to pass to the motor by closing a switch within the relay. A heater coil within the relay actuates a bimetal disc which closes the relay circuit.

Current flows to the motor to operate the blower. One end of the motor shaft is for the circulating air wheel and the other side is for the combustion air wheel.

Circulating air blows against the sail switch and closes the contacts, completing the circuit. The sail switch is a safety device that insures air flow before ignition.

The limit switch is a safety device that protects the furnace from overheating. The contacts in the limit switch open at a given temperature setting, shutting off power to the direct spark ignition (DSI) system that controls the gas valve.

As power is applied to the DSI board, the system does the following:

1. A timing circuit allows the blower to purge the chamber.
2. The board supplies current to the gas valve and causes it to open.

3. As the valve opens, the board sends a high voltage spark to the electrode at the burner. The board confirms the presence of a flame to remain in operation. If the flame is not sensed after 6 seconds, the board will lock out, shutting off power to the valve.

4. If the system does not ignite and the thermostat remains closed, the blower will remain on until the thermostat is reset manually.

When the thermostat senses the desired room air temperature, the contacts open removing power from the ignition system and shutting off the gas valve. The blower runs until the heater coil in the relay cools and opens the circuit, shutting off current to the motor.

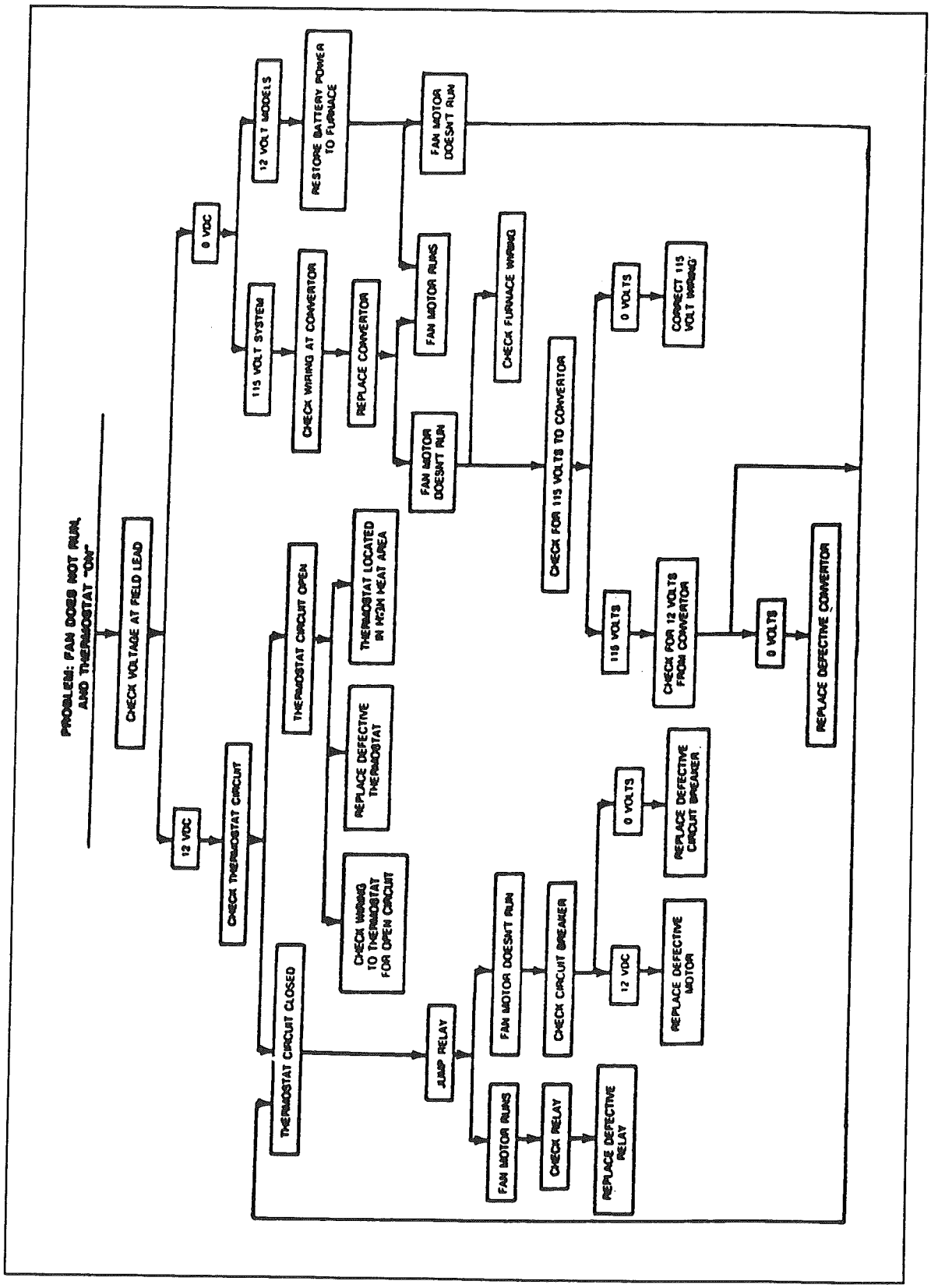
PROPANE GAS SYSTEM SAFETY

This furnace is designed to use propane gas only. **DO NOT** attempt to convert to natural gas. The furnace is designed to operate at 11.0 inches Water Column. The measurement should be taken with at least 50 percent of all gas appliances operating in the RV.

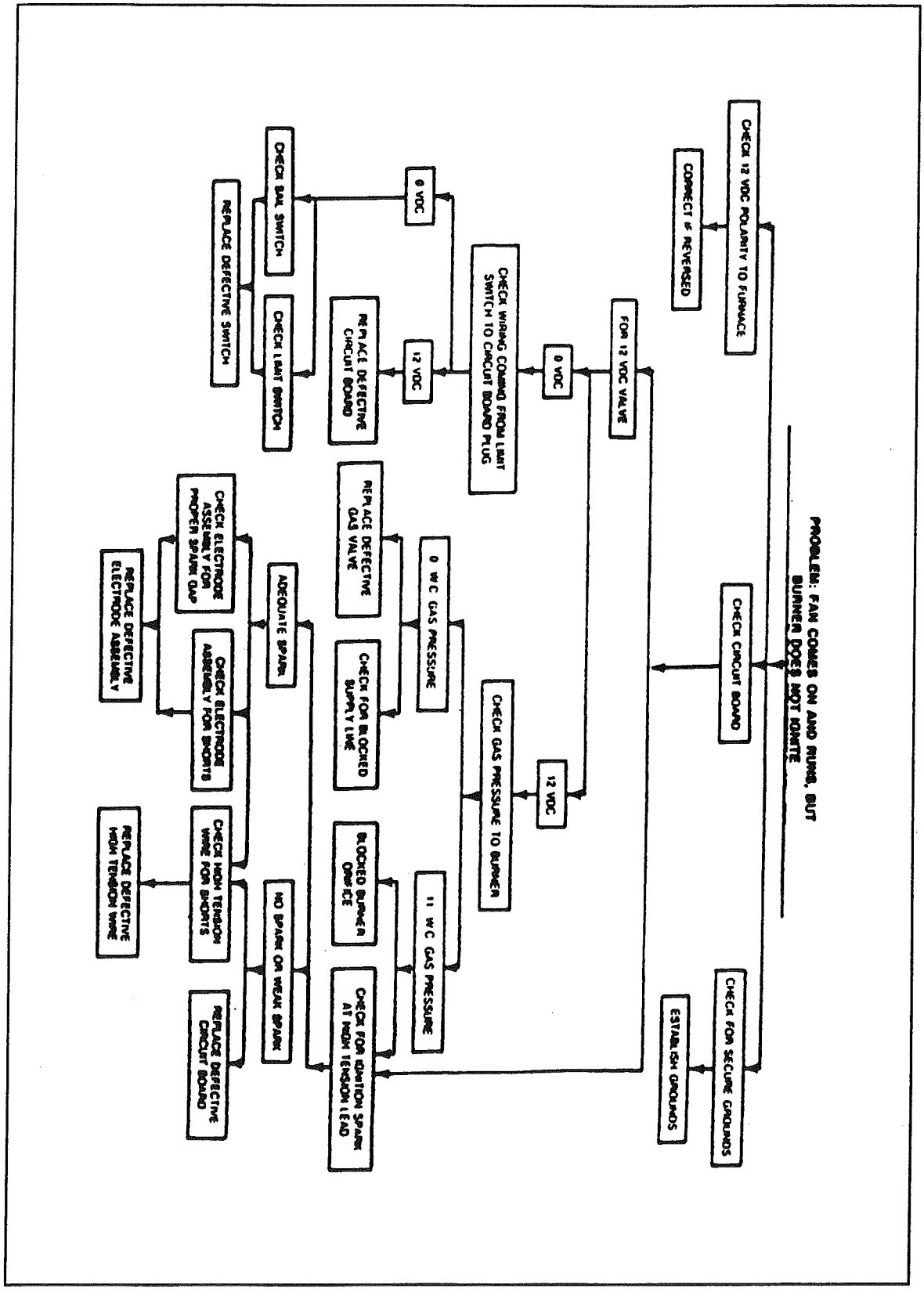
WARNING! AN OVERFILLED GAS BOTTLE IS DANGEROUS. GAS BOTTLES SHOULD BE FILLED BY QUALIFIED GAS SUPPLIERS ONLY.

Liquid gas from an overfilled bottle can be forced through the pressure regulator. This high pressure gas could escape and result in a fire or explosion. To prevent this, please read and adhere to the tank manufacturer's operating instructions located on your tank.

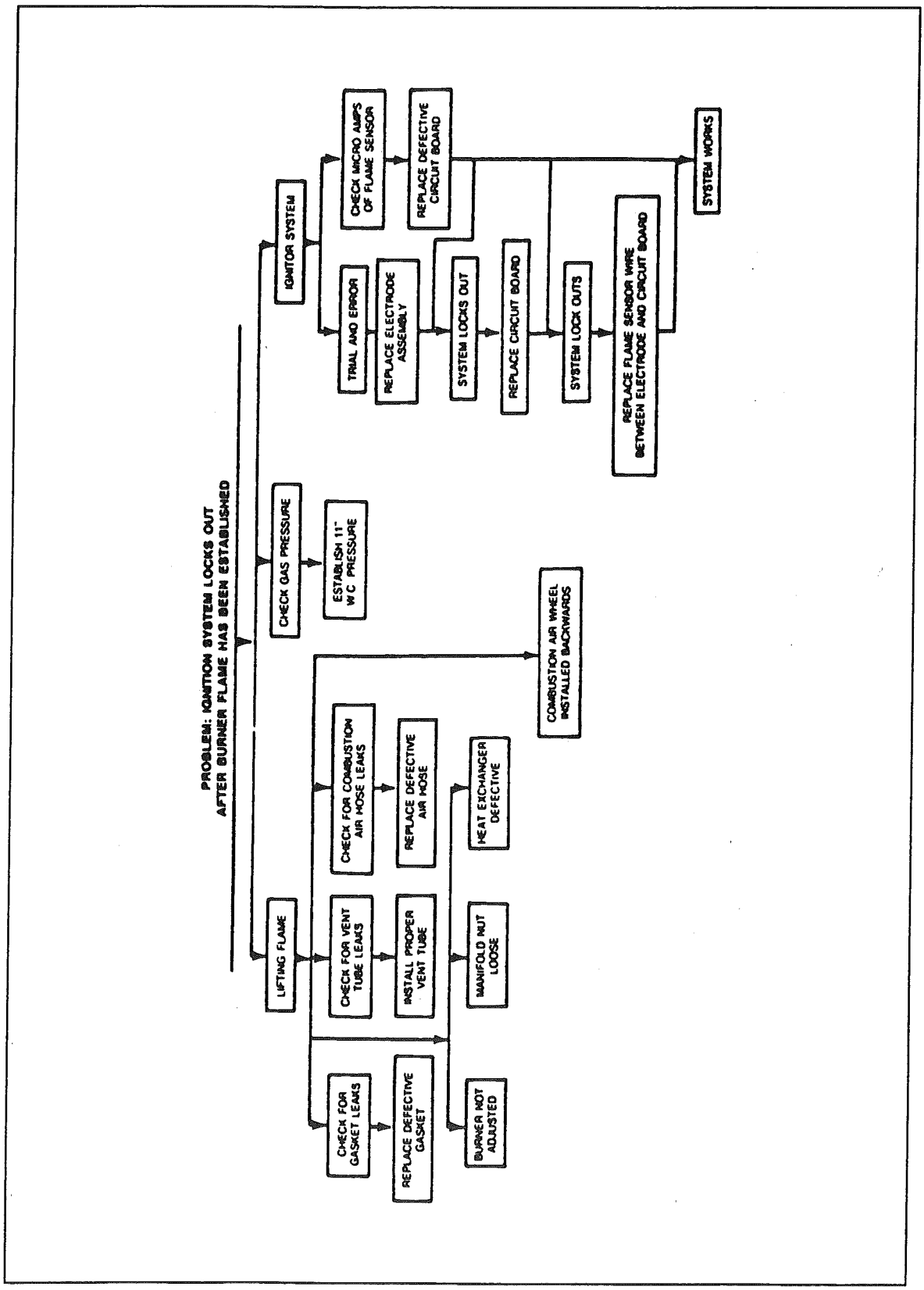
SERVICE CHART #1



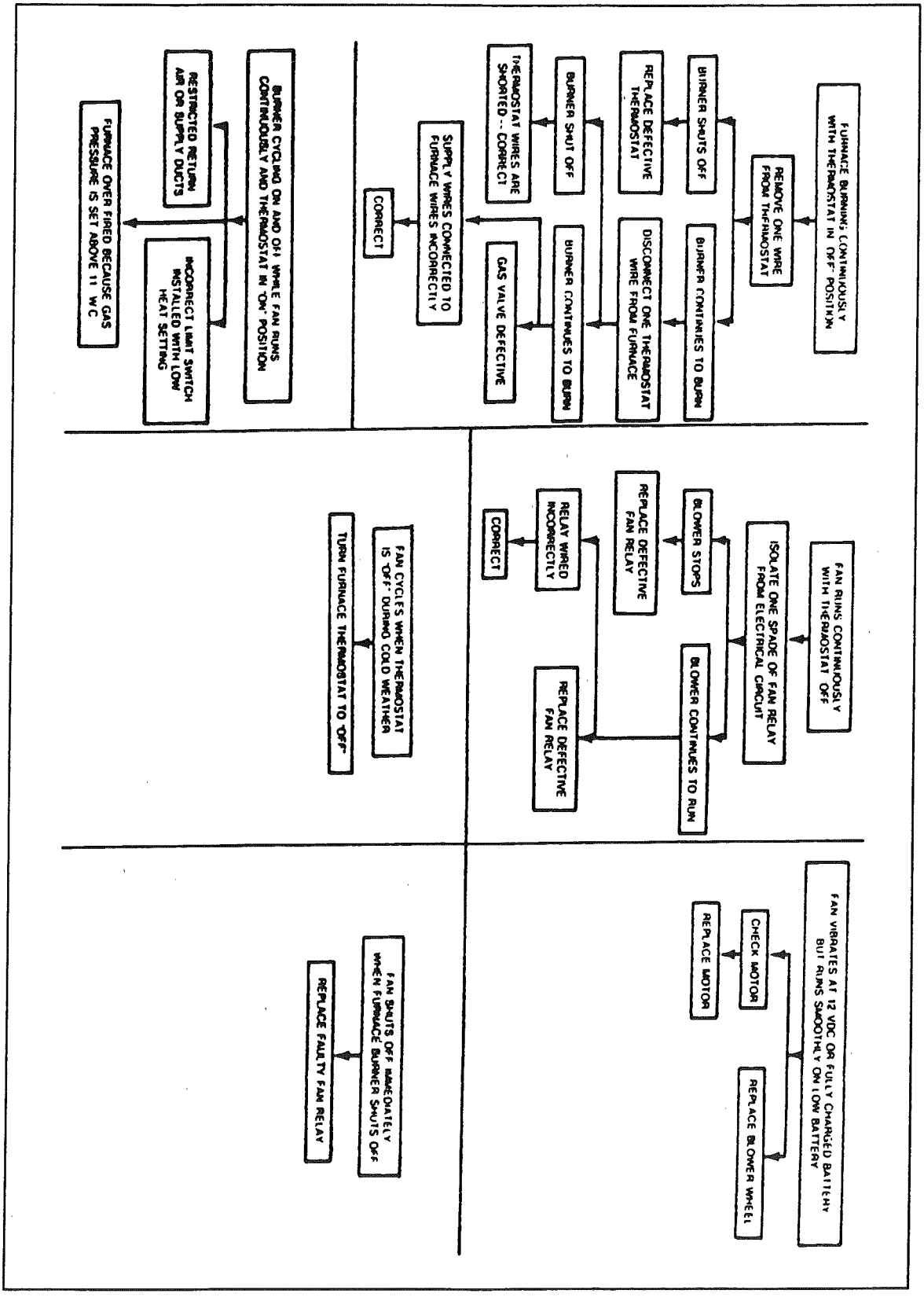
SERVICE CHART #2



SERVICE CHART #3



SERVICE CHART #4



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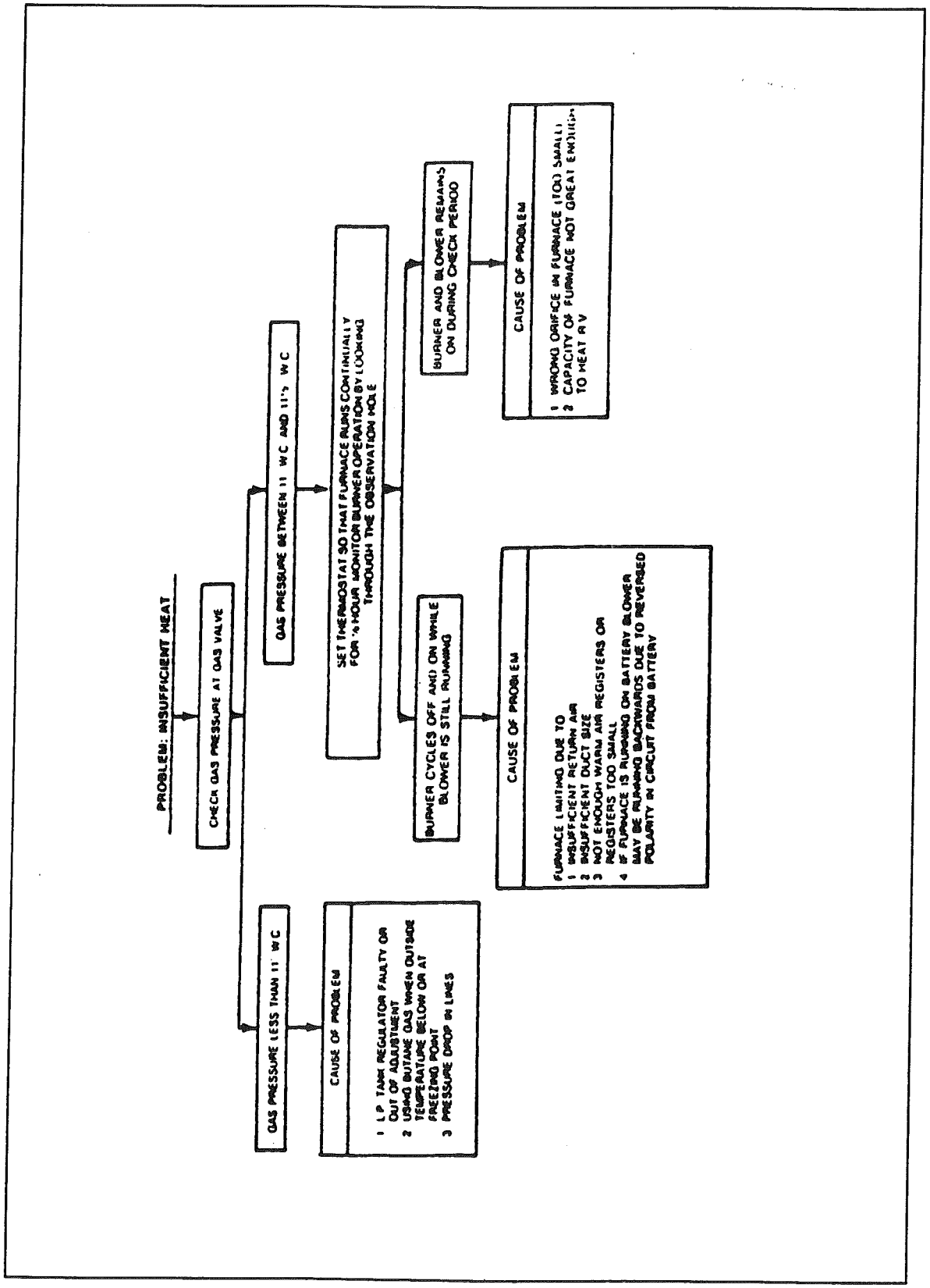

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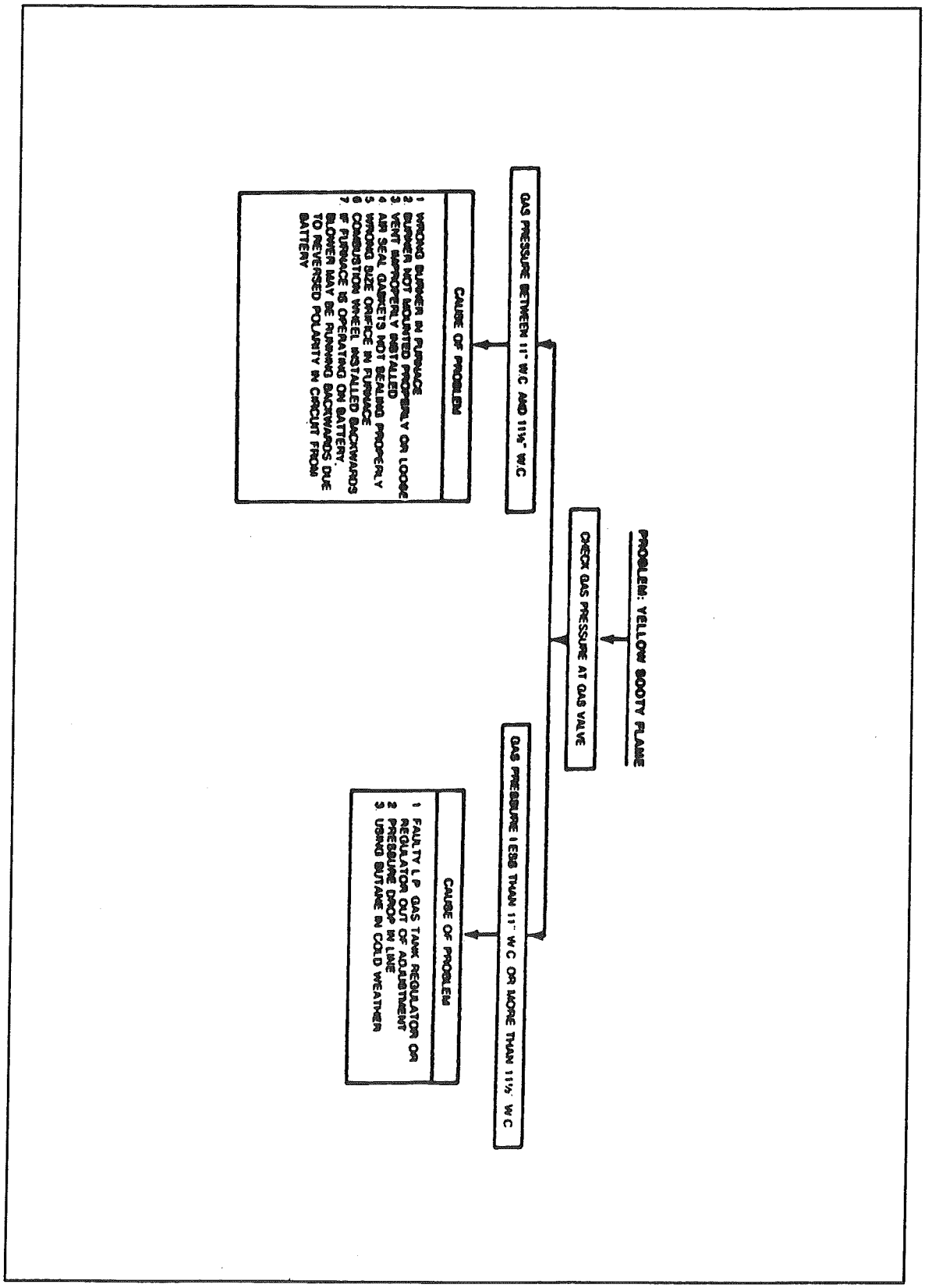


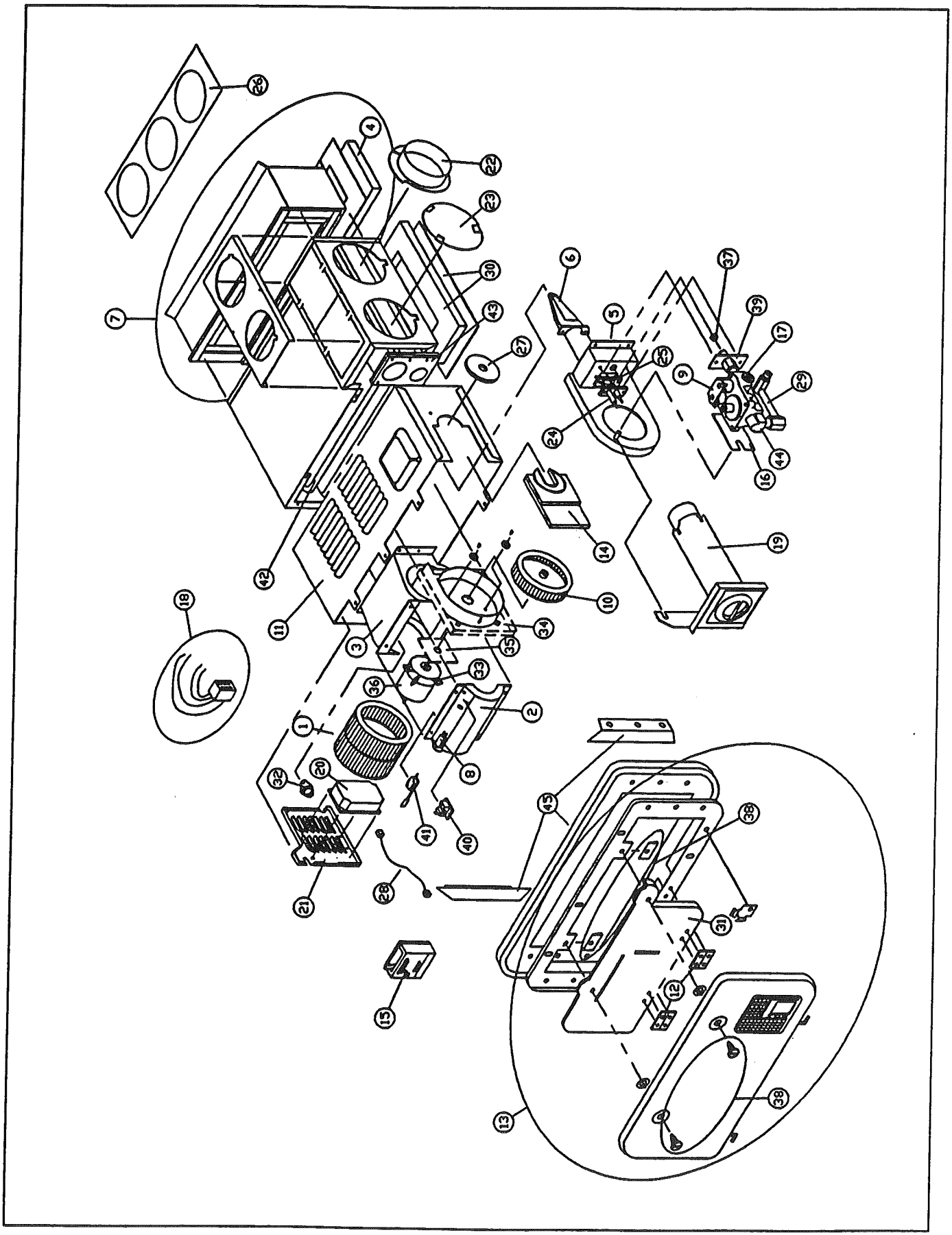
ANNUAL PREVENTIVE MAINTENANCE INSPECTION

The following preventive maintenance and safety checks should be performed by a qualified RV technician once a year, or more, depending on the use of the furnace. **FAILURE TO PROPERLY MAINTAIN THE FURNACE MAY VOID THE FURNACE WARRANTY AND CAN RESULT IN UNSAFE FURNACE OPERATION. PREVENTIVE MAINTENANCE IS NOT COVERED UNDER WARRANTY.**

GAS PRESSURE	Using a U-tube water manometer, with the furnace and at least 50 percent of the appliances operating, the pressure should be 11 inches W.C. Improper gas pressure can cause the furnace to work inconsistently and create unbalanced combustion.
VOLTAGE	There should be between 10 and 13.5 VDC at the furnace during operation. This check should be made from the battery, converter and generator when applicable. Low voltage can cause the furnace to overheat and cycle. High voltage can cause unbalanced combustion, and excessive motor wear.
DUCTING	The heat ducts should be clean and clear of obstructions. Check that the ducts are properly connected and have not come loose from the furnace or outlets.
RETURN AIR	The return air passage should be clean and clear of obstructions and meet the minimum square inches as specified in the installation instructions. ***Make sure combustibles are not stored in the furnace compartment.***
COMBUSTION CHAMBER	Check the chamber for internal obstructions such as wasp or bird nests. The life of the combustion chamber is a function of the amount of time that the furnace has operated. Therefore, it is essential to inspect the chamber for cracks and holes. Have the chamber replaced if it has any cracks or holes - this condition is not field repairable.
GASKETS	Inspect all gaskets for tight seals. ***Do not reuse gaskets - always replace with new.*** Worn seals may allow carbon monoxide to enter the living area and cause illness or death.
GAS SUPPLY SYSTEM	Perform a pressure-drop test according to current ANSI standards, to insure there are no gas leaks.
AIR WHEEL	The air wheel should be clean and clear of obstructions. Starting the furnace with something in the blower will damage the wheel, making replacement necessary.
WIRE CONNECTIONS	Check the furnace for loose or disconnected wires.
DOOR SCREEN	Check the door screen for damage or clogged openings. See door installation section for proper installation of door assembly. Clean with warm soapy water.
CONTROL COMPARTMENT	Clean the control compartment.
MOTOR	The motor is lubricated and permanently sealed. It requires no oiling.

FURNACE PARTS LIST 89 MODELS SERIES DC AND AC

Parts Drawing No.	Description
1	Blower wheel
2	Blower housing cover
3	Blower housing assembly
4	Gasket bottom discharge
5	Burner box assembly
6	Burner assembly
7	Extension box kit
8	Circuit breaker
9	Coil replacement
10	Combustion wheel
11	Control box assembly
12	Door hinge (2)
13	Door assembly (specify color)
14	Slide plate
15	Thermostat
16	Valve bracket
17	Valve
18	Wiring harness assembly complete
19	Draft cap assembly
20	DSI board (05-30)
20	DSI board (05-15)
21	DSI bracket
22	Duct adapters
23	Duct cover plate
24	Electrode
25	Electrode gasket
26	Flex adapter plate
27	Gas inlet plug
28	High tension lead
29	Inlet manifold
30	Bottom plenum plate kit
31	Inner door
32	Limit switch
33	Motor bracket
34	Motor mounting wall assembly
35	Motor gasket
36	Motor
37	Orifice
38	Outer door fastener (2)
39	Outlet manifold
40	Relay
41	Sail switch
42	Element assembly
43	Exhaust wall gasket
44	Female street elbow, 3/8 x 3/8
45	Recess pan assembly (specify color)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REFRIGERATOR

Manufacturer: The Dometic Corporation
509 South Poplar St.
LaGrange, IN 46761
Phone: 219-463-4850

2-Way Models - 2807

INSTRUCTIONS FOR USE

HOW TO START THE REFRIGERATOR

Leveling

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

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

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

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

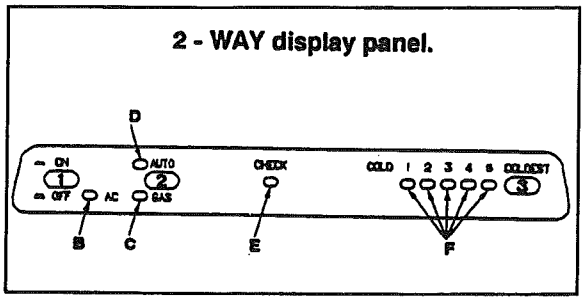
OPERATION

Before starting the refrigerator, check that all the manual gas valves are in the ON position. DO NOT forget the manual shutoff valve on the rear of the refrigerator, see FIG. 1.

This refrigerator is equipped with a semi Automatic Energy Selector (AMES) control system, which can be set to automatically select either 120 volt AC or LP gas operation, or if desired LP gas only. On 3-way models the control system can manually be set to DC operation. The refrigerator controls will work down to 9.6 volt DC.

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.

FOR YOUR SAFETY, it is recommended that all LP gas appliances which are vented to the outside should be shut off when refueling.



START UP INSTRUCTIONS

A. A 12 volt DC supply must be available for the electronic control to function.
B. Press the main power ON/OFF button (1) to the DOWN position.
C. Press the TEMPERATURE SELECTOR BUTTON (3) 2-WAY Model or (4) 3-WAY Model until the lamp at the desired setting is illuminated.

2-WAY MODEL

AUTO MODE

1. Move the AUTO/GAS mode selector button (2) to the DOWN position. If 120 volts AC is available, the AC mode indicator lamp (B) will illuminate indicating AC operation. If 120 volts AC is not available, the GAS mode indicator lamp (C) will illuminate and the control system will automatically switch to GAS operation.
2. If the CHECK indicator lamp (E) illuminates and the GAS mode indicator lamp (C) is off, the controls have failed to ignite the burner in the GAS mode. GAS operation may be reset by pressing the main power ON/OFF button (1) to the OFF than ON position. (see step 2 under GAS MODE)
3. Press the TEMPERATURE SELECTOR button (3) until the lamp at the desired position is illuminated.

GAS MODE

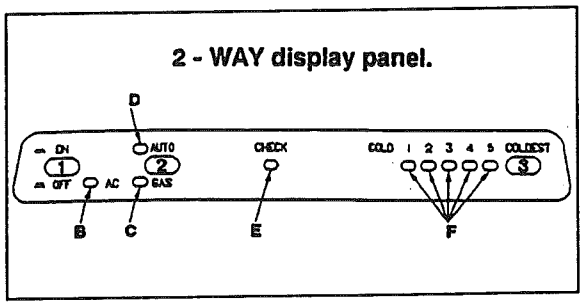
1. Move the AUTO/GAS mode selector button (2) to the UP position. The GAS mode indicator lamp (C) will illuminate. After 45 seconds the burner should be ignited and operating normally.
2. On the initial refrigerator start-up, it may take longer than 45 seconds to allow air to be purged from the gas line. If the gas does not ignite within 45 seconds the CHECK indicator lamp (E) will illuminate and the GAS mode indicator lamp (C) will go off. To reset when the CHECK indicator lamp (E) is illuminated, press the main power ON/OFF button (1) to the OFF and then ON position.

NOTE: Do not continue to reset GAS operation if the CHECK indicator lamp continues to be illuminated after several tries.

3. Press the TEMPERATURE SELECTOR button (3) until the lamp at the desired position is illuminated.

TO SHUT OFF THE REFRIGERATOR

The refrigerator may be shut off while in any mode of operation by pressing the main power ON/OFF button to the UP (OFF) position. This shuts off all DC power to the refrigerator, including the interior light.



DESCRIPTION OF OPERATING MODES

THERMOSTAT

The thermostat on the refrigerator controls both the gas and electric operation, thereby eliminating the necessity of resetting each time a different energy source is employed.

After the initial start-up, the thermostat should be moved from "COLDEST" to the desired temperature setting, usually about mid setting.

AUTO MODE

When operating in the AUTO mode, the AUTO modes indicator lamp (D) will illuminate. The control system will automatically select between AC and GAS operation with AC having priority over GAS. Either the AC indicator lamp (B) or the GAS indicator lamp (C) will illuminate depending on the energy source selected by the control system. If the control system is operating with AC energy and it then becomes unavailable, the system will automatically switch to GAS. As soon as AC becomes available again the control will switch back to AC regardless of the status of GAS operation.

GAS MODE

When operating in the GAS mode the AUTO mode indicator lamp (D) will be off and the GAS mode indicator lamp (C) will be illuminated. This mode provides LP gas operation only. The control system will activate the ignition system and will attempt to light the burner for a period of approximately 45 seconds. If unsuccessful, the CHECK indicator lamp (E) will illuminate and the GAS mode indicator lamp (C) will turn off.

To restart GAS operation, press the main power ON/OFF button (1) to the OFF and then ON position. The control system will attempt a new 45 second ignition sequence.

If the refrigerator has not been used for a long time or the LP tanks have just been refilled, air may be trapped in the supply lines. To purge the air from the lines may require resetting the main power ON/OFF button (1) three or four times. If repeated attempts fail to start the LP gas operation, check to make sure that the LP gas supply tanks are not empty and all manual shut-off valves in the lines are open. If the problem is still not corrected, contact a service center for assistance.

If the control is switched to AC or DC operation while the CHECK indicator lamp is on, it will function property, but the CHECK indicator lamp will not go off until the main power ON/OFF button is pressed to the OFF then ON position.

HOW TO USE THE REFRIGERATOR

FOOD STORAGE COMPARTMENT

The food storage compartment is completely closed and unventilated, which is necessary to maintain the required low temperature for food storage. Consequently, foods having a strong odor or those that absorb odors easily should be covered. Vegetables, salads etc. should be covered to retain their crispness. The coldest positions in the refrigerator are under the cooling fins and at the bottom of the refrigerator. The warmer areas are on the upper door shelves. This should be considered when placing different types of food in the refrigerator.

FROZEN FOOD STORAGE COMPARTMENT

Quick frozen soft fruits and ice cream should be placed in the coldest part of the compartment which is on or just below the freezer shelf. Frozen vegetables, may be stored in any part of the compartment.

This compartment is not designed for deep or quick freezing of food. Meat or fish, whether raw or prepared, can be stored in the frozen food storage compartment provided they are pre-cooled first in the refrigerator. They can be stored about three times longer in the frozen food compartment as compared to the fresh food compartment. To prevent food from drying out, keep it in covered dishes, containers, plastic bags or wrapped in aluminum foil.

ICE MAKING

Ice cubes can be made in the ice tray placed in the freezer compartment. The tray should be filled with water to within 1/4" (5mm) from the top. For faster ice making, the tray should be placed in direct contact with the freezer shell.

To release the ice cubes, seize the tray with both hands and twist the tray. Cubes not required should be replaced in the tray. Refill the tray with water and replace the tray on the freezer shelf.

Ice will be made more rapidly if the thermostat is set at the highest position.

It is a good idea to do this a few hours before the anticipated need for ice, but be sure to move back to normal setting, usually about mid setting when the ice is formed. Food in the lower compartment may be frozen if the setting is left on "COLDEST" position.

DEFROSTING

Shut off the refrigerator by pressing the main power ON/OFF button to the UP (OFF) position. Empty the refrigerator, leaving the drip tray under the finned evaporator, and the cabinet and freezer doors open. Defrosting time can be reduced by filling the ice tray with hot water and placing it on the freezer shelf.

CAUTION: DO NOT use a hot air blower. Permanent damage could result from warping the metal or plastic parts. DO NOT use a knife or an ice pick, or other sharp tools to remove frost from the freezer shelf. They can create a leak in the ammonia system.

When all frost is melted, dry the interior of the refrigerator with a clean cloth. Replace all food and set thermostat to the COLDEST temperature setting for a few hours. Then reset the thermostat to the desired setting, usually at mid setting.

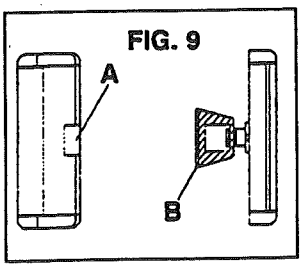
NOTE: On these models the drip tray/cup is on the rear side of the refrigerator. (see FIG. 1).

Move the plastic drain tube in to a water tight bucket or container. (Access through louvered service pane, on the outside of the vehicle.) As the frost melts, the water will flow into the container. When all the frost has melted wipe up the excess moisture and empty the accumulated water from the bucket. Replace the drain tube to the original position.

CLEANING

Cleaning the refrigerator is usually done after it is defrosted or put into storage. To clean the interior liner of the refrigerator, use lukewarm weak soda solution. Use only warm water to clean the finned evaporator, ice trays and shelves. NEVER use strong chemicals or abrasives to clean these parts as the protective surfaces will be damaged. It is important to always keep the refrigerator clean.

SHUT OFF - STORAGE PROCEDURE



Shut off the refrigerator by pressing the main power ON/OFF button to the UP (OFF) position.

If the refrigerator will not be in operation for a period of weeks, it should be emptied, defrosted, cleaned and the doors left ajar. The ice tray should also be dried and kept outside the cabinet.

The handle of the travel latch is designed to keep the refrigerator doors open slightly allowing air to circulate, preventing odors and mildew. The doors can be secured in the vented position by pushing the square button "A" (FIG. 9) until the notch seizes the catch "B" (FIG. 9). To release the door, simply pull the handle.

CAUTION: DO NOT store explosive substances in the refrigerator, such as cigarette lighter gas, petrol, ether or the like.

CLIMATE CONTROL HEATER

In certain temperatures and humidity conditions, the metal frame between the refrigerator doors can sweat The refrigerator is equipped with a 12 volt electric heater that warms the frame to prevent condensate formation. The climate control heater is turned on with a switch ("G") located on the front base-See FIG. 2.

The switch can be left on continuously or turned OFF and ON as temperature and humidity condition justify. **NOTE: THE CLIMATE CONTROL WILL DRAW 12 VOLT DC POWER CONTINUOUSLY. IT SHOULD BE TURNED OFF WHEN A CHARGING SOURCE IS NOT AVAILABLE.**

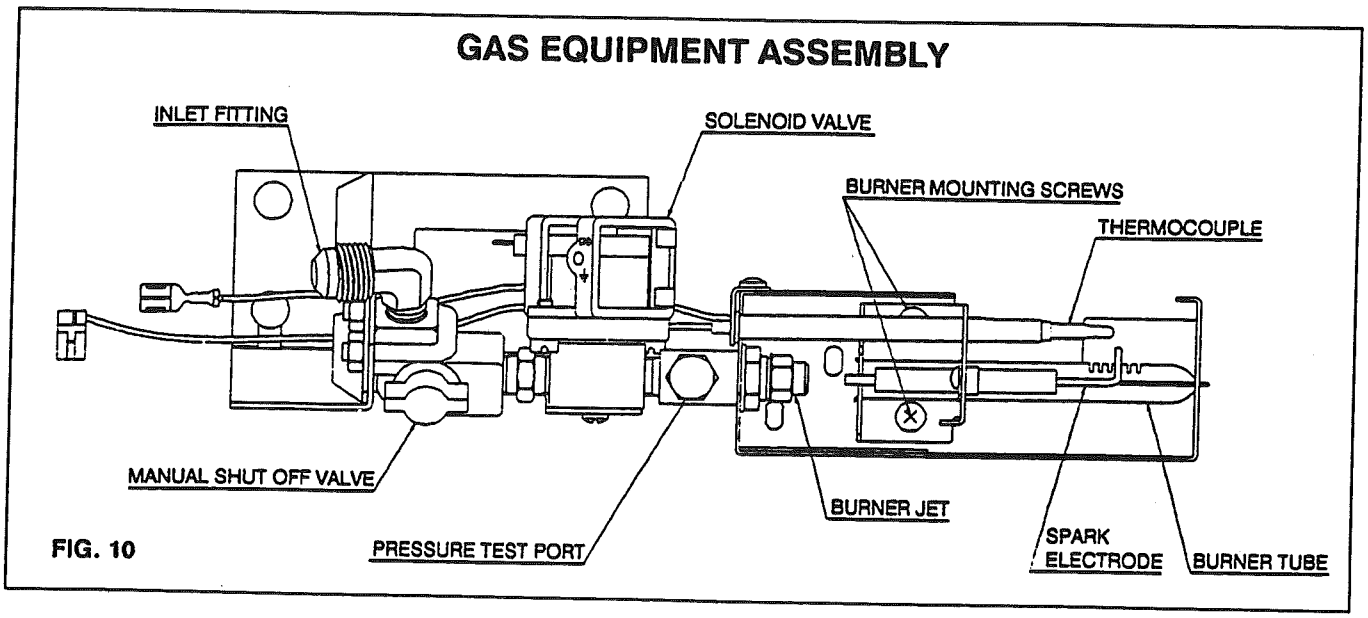


FIG. 10

ELECTRIC EQUIPMENT

CARTRIDGE HEATER

The heat necessary for the operation of an absorption cooling unit is supplied by an electric heater mounted in a pocket of the boiler system.

The 3-WAY Model is equipped with two electrical heaters, one for 120 volt AC and one for 12 volt DC.

The 2-WAY Model is equipped with one electric heater 120 volt AC.

To replace the heater proceed as follows:

1. Disconnect the wall plug, and the 12 volt wires.
2. Remove the protection cover see FIG. 1
3. Remove the power module cover see FIG. 1
4. Disconnect the heater leads.
5. With a pair of pliers unfold the lug holding the lid of the boiler casing and open the lid.
6. Remove some insulation wool so that the heater is accessible.
7. Turn and lift the heater out of its pocket.
8. Fit the new heater into the pocket.
9. Connect the leads and put on the power module cover.
10. Reset the insulation and close the lid of the boiler.
11. Replace the protection cover.

FUSES

The 2-way AMES models are equipped with 2 fuses, one for the refrigerator control system and one for the AC cartridge heater.

The 3-way AMES models are equipped with a third fuse for the DC cartridge heater. (see table below)

To replace fuse(s) proceed as follows:

1 . Disconnect the wall plug, and the 12 volt wires.
2. Remove the power module cover. See FIG. 1.
3. Snap the fuse out of the fuse holder.
4. Fit a new fuse in to the fuse holder.
5. Replace the power module cover.

Control system	3 Amp
AC heater	5 Amp
DC heater	35 Amp

MAINTENANCE & SERVICE

1. REFRIGERATOR REMOVAL

Before working on the refrigerator make sure that 120 volt AC and 12 volt DC leads are disconnected. Close the shut-off valve on the gas supply piping system. Disconnect the outgoing gas line from the gas valve at the rear of the refrigerator. (see FIG. 1.) Loosen the screws anchoring the refrigerator to the enclosure (see FIG. 5) and slide the refrigerator forward out of the compartment.

When replacing the refrigerator make sure that the sealing strips are property positioned.

After reassemble the gas connection should be checked for leaks.

2. PERIODIC MAINTENANCE

To keep your Dometic refrigerator operating efficiently and safely, periodic inspection and cleaning of several components once or twice a year is recommended.

A. It is important to keep the area at the back of the refrigerator clean. Check the lower vent, upper vent and area between these openings for any obstructions such as bird/insect nests, spider webs, etc. Clean the coils on the back of the refrigerator. Use a soft bristled brush to dust off the coils.

It is important to keep the refrigerator area free from combustible material, gasoline and other flammable vapors or liquids.

NOTE: AVOID SPRAYING WATER THROUGH THE REFRIGERATOR VENTS WHILE WASHING YOUR RV.

B. Check all connections in the LP gas system (at the back of the refrigerator) for gas leaks. The LP gas supply must be turned on. Apply a non-corrosive bubble solution to all LP gas connections. The appearance of bubbles indicates a leak and should be repaired immediately by a QUALIFIED SERVICEMAN WHO IS FAMILIAR WITH GAS SYSTEM AND REFRIGERATORS.

WARNING: DO NOT use a flame to check for gas leaks.

C. Check the AMES control system by connecting/disconnecting 120 volt AC power, start/stop the engine, etc. Compare the operation with the operation described in description of operating modes. Side 9.

NOTE: The following maintenance is required once or twice a year, but should only be done by a qualified serviceman who is familiar with LP gas systems and refrigerators.

D. The LP gas pressure should be checked and the main regulator re-adjusted if pressure is incorrect. The correct operating pressure is 11 inches of water column. The correct place to take the LP gas pressure is at the test port just ahead of the burner jet (See FIG. 10).

E. Inspect the flue baffle. It should be reasonably clean and free of soot. Heavy soot formation indicates improper functioning of the burner. The flue and burner both require cleaning in the following manner

1. Unplug the refrigerator power cord from the 120 volt AC outlet (See FIG. 3).
2. Disconnect or shut off the 12 volt power to the refrigerator.
3. Turn manual shutoff valve to OFF. (See FIG. 1).
4. Remove cover from the burner housing. (See FIG. 1).
5. Disconnect the wire from the high voltage electrode.
6. Remove the burner mounting screws and remove the burner assembly. (See FIG. 10).
7. Remove the flue cap from top of flue tube and lift out the wire and spiral baffle. Clean the flue from the top using a flue brush. Blowing compressed air into the flue will not property clean soot and scale out of the flue tube. Replace spiral baffle and flue cap.
8. Clean burner tube with a brush. Blow out burner with compressed air.

Clear blue colour of flame

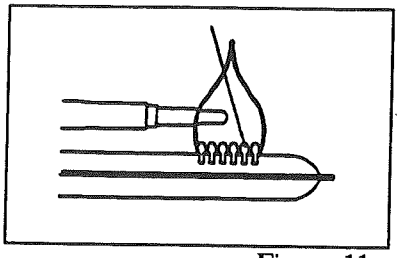
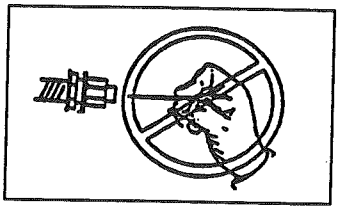


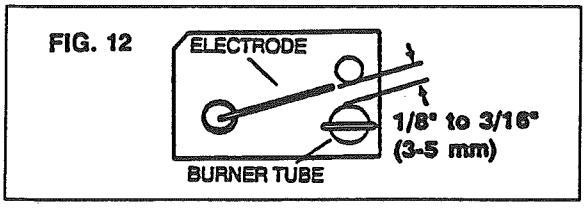
Figure 11

9. Before removing burner **jet** clean burner area of soot and scale that fell out of flue tube. Remove the burner jet. Soak the jet in wood alcohol and blow it out with compressed air. Re-install and tighten burner jet. **NOTE:** The color of the flame shall be clear blue over the slots of the burner. (See FIG. 11).

CAUTION: DO NOT use a wire or pin when cleaning the burner jet as damage can occur to the precision opening. This can cause damage to the refrigerator or create a fire hazard.



10. Reinstall burner, being careful that the end of the burner fits into the slot on the burner bracket. Check to make sure slots are centered under the flue tube and the thermocouple is positioned property (tip of thermocouple extends over two slots of burner).
11. Be sure to reconnect the wire to high voltage electrode. Check the electrode for proper location and gap. (See FIG. 12).
12. Turn on manual gas shut-off valve and check all fittings for leaks.



13. Connect 120 volt power cord to the outlet and reconnect or turn on the 12 volt DC power.
14. Check LP gas safety shut-off. See side 6.

TROUBLESHOOTING

The Refrigerator Does Not Cool Properly

Causes and remedies

Failure of refrigeration does not necessarily indicate that the cooling system is defective. Other factors governing its operation must be checked.

1. Common.

la. Fuse(s) blown, replace (see side 11).

1b. Check level of refrigerator.

1c. Venting problem. Restriction in airflow across cooling unit.

ld. Heavy frost buildup on evaporator fins, defrost.

le. If the refrigerator has been operating on gas and a loss of cooling is noted, convert the refrigerator to AC power (see start up instructions side 8).

If the refrigerator has been operating on AC, switch to gas operation. This will determine if a component failure in the electric or gas controls is causing the cooling fault. After the refrigerator has been converted from one power source to the other (gas to AC, or AC to gas) allow time to assure the unit is cycling property. At the end of the period the freezer plate should start to cool.

1f. A minimum of 9.6 volt DC supply present for the refrigerator control system.

1g. The thermostat can not be moved from MID position to the desired setting. The display module has became nonfunctional. See limp mode of operation (side 9).

1h. The refrigerator is running continuously and cool to much.

The temperature sensing device has become non functional. See limp mode of operation (side 9).

2. Gas operation only.

2.1 The refrigerator will not operate on gas when AC is present.

The display module has become non functional. See limp mode of operation (side 9).

2.2 Burner jet clogged. Clean see Section Maintenance/Service, item 2. Periodic maintenance, Paragraph E. item 9.

2.3 Flue baffle not inserted property in flue tube (see side 3 FIG. 1).

2.4 Burner dirty. Clean. See Section Maintenance/Service, item 2. Periodic Maintenance, Paragraph E. item 8.

2.5 LP gas pressure low at burner.

Set main regulator so pressure does not drop below 11 inches water column at pressure test port (see side 11 FIG. 10).

2.6 Burner not located property under flue tube, relocate.

2.7 Burner damage, replace.

ODOR FROM FUMES

CAUSES AND REMEDIES

A. The flame touches side of the boiler due to dislocation of the burner. Relocate. Burner dislocation may also cause smoke and discoloring of walls and ceiling.

B. Burner damaged. Replace.

All the above instructions are to be followed closely. The refrigerator is quality-guaranteed. However, we are not responsible for any failures caused by improper adjustments and unfavorable installation conditions. Contact service point or distributor service department for assistance.

ICE MAKER OPERATING INSTRUCTIONS

A. WATER CONNECTION

The water supply system must have a minimum pressure of 15 psi. A water line 1/4 inch in diameter shall be used to the water valve connection at the rear of the refrigerator. The water line must have a manual shut-off valve placed where it is easily accessible.

B. HOW TO OPERATE THE ICE MAKER

The refrigerator must be allowed to precool properly before starting the ice maker. The refrigerator has to be connected to 120 volts AC before the ice maker can operate. The water line manual shut-off valve must be open. To start the ice making, move the ice level bail arm to down position, see FIG. 1.

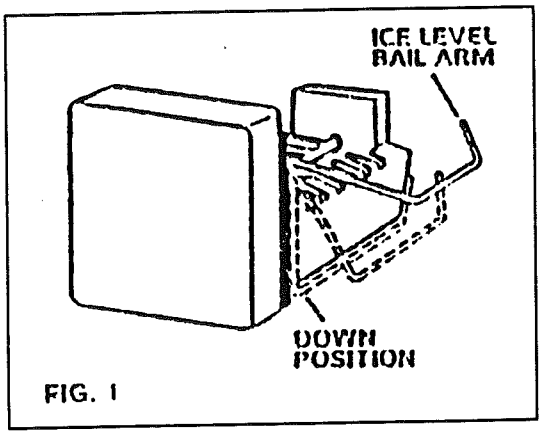


FIG. 1

To shut off the ice making, move the ice level bail arm to fully up position, see FIG. 1.

When the ice maker thermostat senses the preset temperature for ejection of the ice cubes, the fingers will start to rotate - dumping any ice cubes and filling the mold with water.

When storage container is full of ice, the ice level bail arm cannot return to the down position.

This will stop further production of ice until the container is emptied and the bail arm is returned to the start position.

The absorption system will keep the compartment at the proper temperature for storage of ice. Ice making is accelerated if the thermostat is set to the coldest position.

It is a good idea to do this a few hours before an anticipated need for ice.

NOTE: IF THE ICE MAKER WAS CLEANED AND DRAINED, NO ICE CUBES WILL BE DUMPED INTO THE STORAGE CONTAINER DURING THE FIRST CYCLE

The first few cycles may have small cubes due to air trapped in the water lines. The first container of ice cubes should be dumped if the water system has been winterized or not used for several weeks.

C. HOW TO ADJUST SIZE OF ICE CUBES

If the ice maker has run through several cycles and the cubes are too small or sticking together, adjustments is necessary on the amount of water entering the mold.

To adjust the amount of water entering the mold, remove the protective cover from the ice maker mechanism, see FIG. 2.

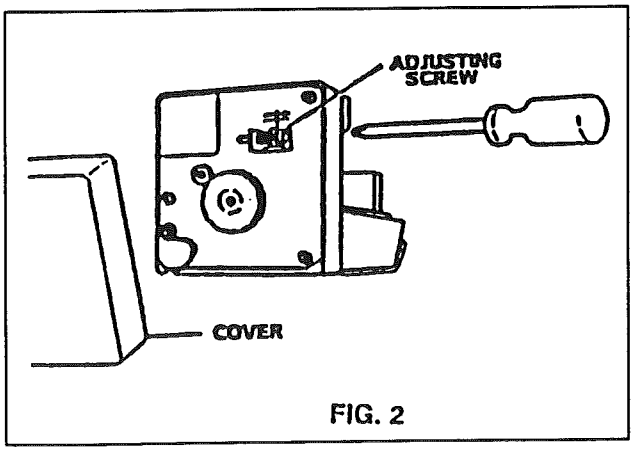


FIG. 2

To increase the size of the cubes, turn the adjusting screw counter-clockwise.

To decrease the size of the ice cubes, turn the adjusting screw clockwise.

CAUTION: DO NOT turn the screw more than one turn at a time. The ice maker should be allowed to cycle several times before another adjustment is made. Be sure to replace protective cover on the cycle after adjustments have been made.

D. HOW TO DRAIN THE ICE MAKER

If the RV is left unheated during the winter or put into storage, drain and dry the ice maker to prevent damage from freezing of water lines and valves. This will also prevent water from becoming stale and producing bad tasting ice.

To drain the ice maker, close the water line shut-off valve. Hold a pan under the water valve and loosen the water hose plastic nut from the water valve, see FIG. 3.

The water valve will now be drained, the water hose must be bent straight to allow the water to drain out, see FIG. 3.

Dry the mold cavities with a clean cloth.

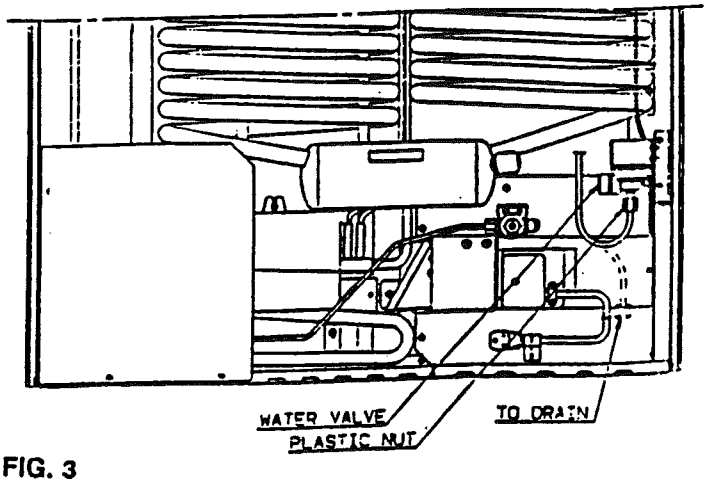
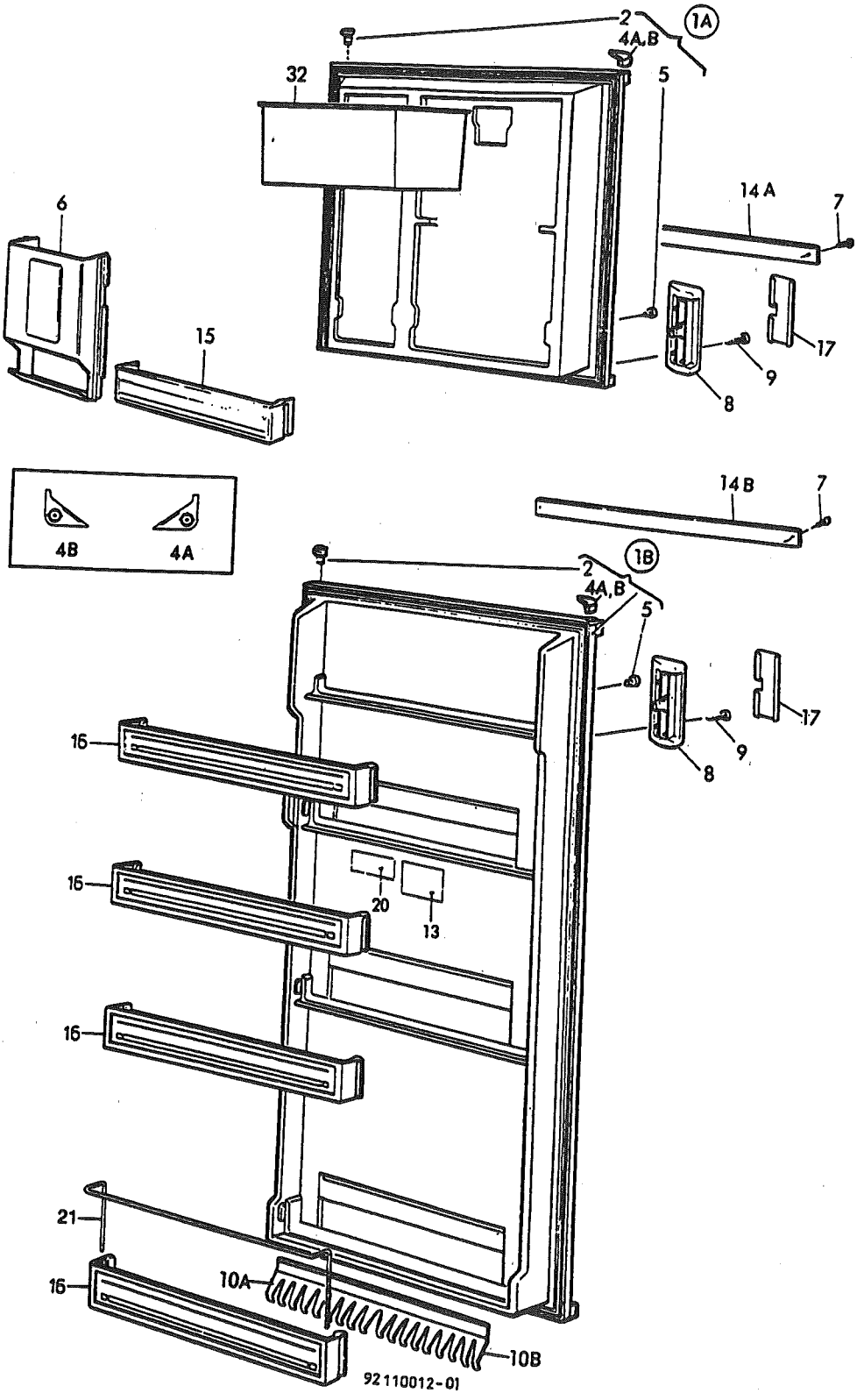


FIG. 3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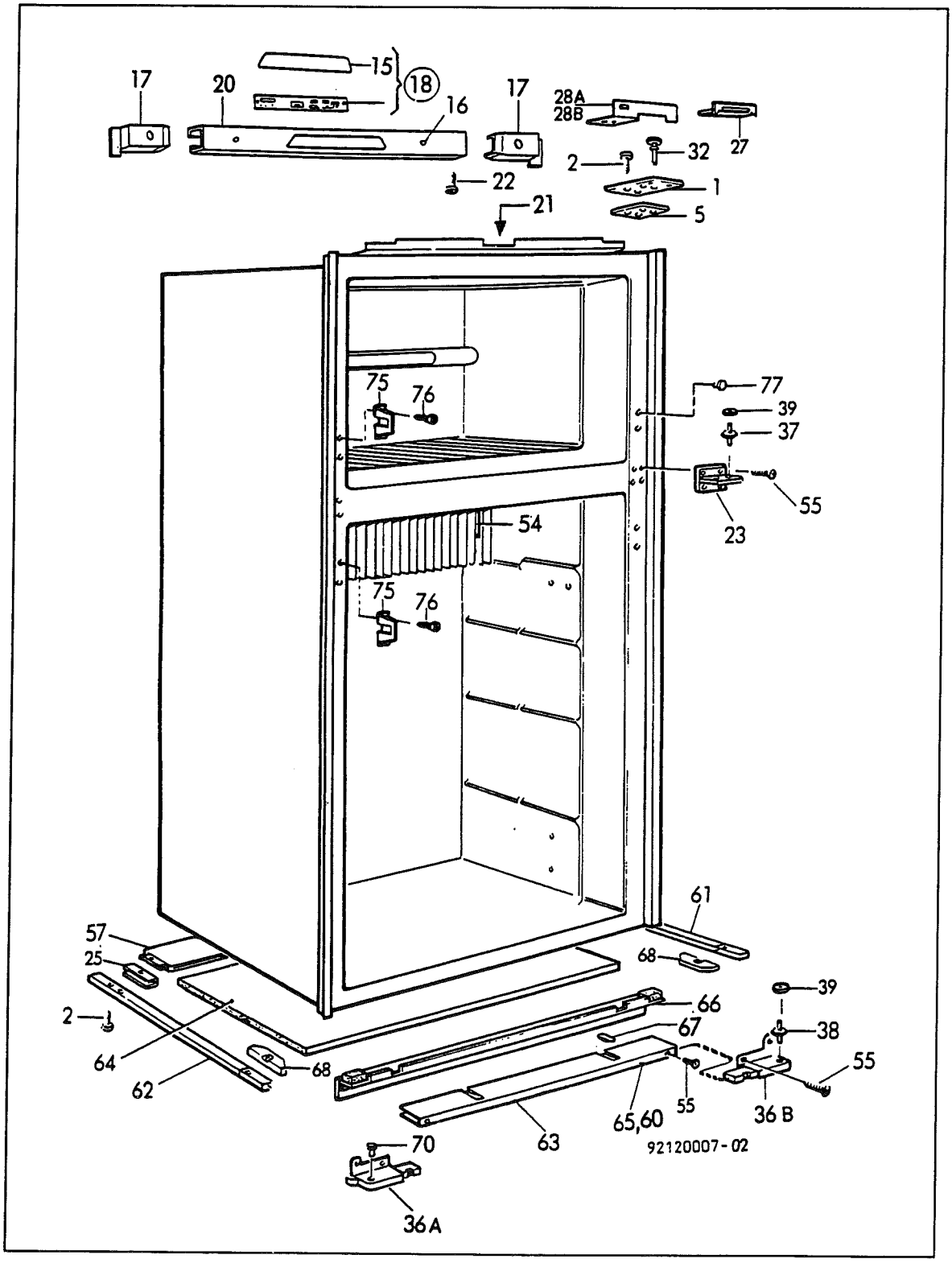
POS. NO	PART NO	DESCRIPTION
1A	293 16 40-11/0	Door, upper
1 B	293 16 39-11/2	Door, lower
2	293 11 71-01/7	*Bushing
4A	293 15 12-01/2	*Washer
4B	293 15 12-02/0	*Washer
5	293 15 10-03/2	*Plug
6	293 05 33-01/9	Retainer
7	729 52 29-01/2	Screw, B4x16, zinc plated
8	293 11 99-01/8	Handle
9	729 52 25-01/0	Screw, RXS, B4x10, zinc plated
10A	293 07 15-03/8	Holder bottle, Approx 7 1/2", grey beige
10B	293 07 15-04/6	Holder bottle, Approx 8", grey beige
13	200 23 56-00/0	Label, "Important.."
14A	293 11 62-01/6	Strip decoration
14B	293 11 62-18/0	Strip decoration
15	293 05 58-01/6	Shelf door, brown
16	200 17 32-13/6	Shelf door, 4 pieces
17	293 15 71-01/8	Coverplate
20	293 16 20-00/5	Label "Warning: Improper installation"
21	200 17 34-00/9	Rack
32	293 05 36-02/0	Box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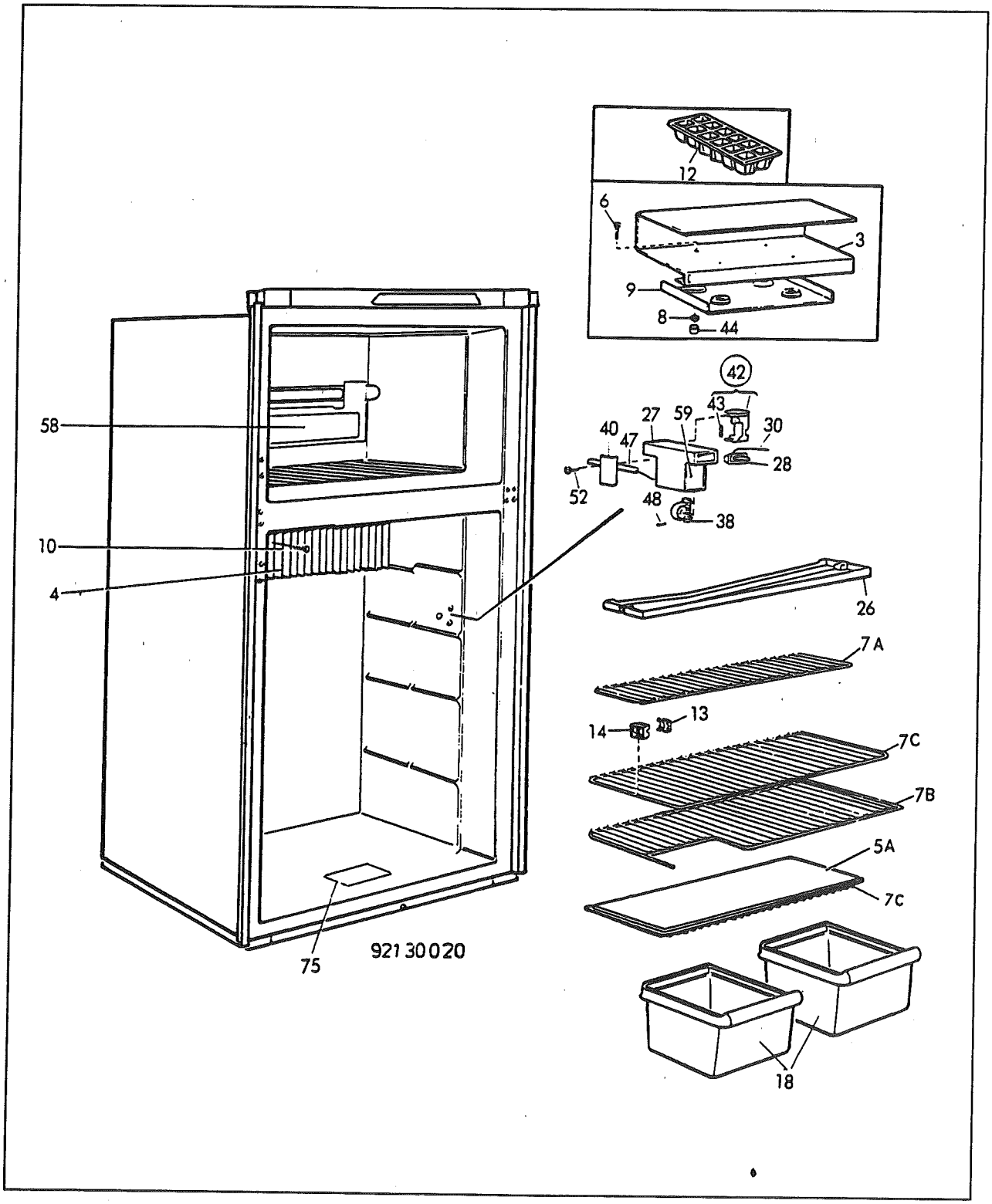
A = RM2807 (921 59 06-01, 921 59 14-01)
B = RM2807 (921 59 08-01, 921 59 16-01)

POS. NO	PART NO			DESCRIPTION
1	293 12 91-01/3	A	B	Hinge,upper
2	724 13 28-61/1	A	B	Screw, M5x14, zinc plated
5	293 12 92-01/1	A	B	Washer
15	95 50 00-09/6	A	-	Decoration
	95 50 00-10/4	-	B	Decoration
16	293 01 32-06/9	A	B	Plug
17	293 18 66-01/2	A	B	Side plate, right
	293 18 66-02/0	A	B	Side plate, left
15	293 18 44-01/9	A	-	Circuit board
	293 18 45-01/6	-	B	Circuit board
20	293 18 65-05/5	A	B	Front
21	293 13 04-00/6	A	B	Label, "This refrigerator must be installed. . ."
22	729 82 79-11/3	A	B	Screw, B6x9,5, zinc plated
23	293 12 89-01/7	A	B	Hinge, middle
25	293 07 74-01/9	A	B	Reinforcement
27	293 15 74-01/2	A	B	Sealing
28A	293 14 59-01/6	A	B	Plate mounting, left
28B	293 14 59-02/4	A	B	Plate mounting, right
32	293 12 88-01/9	A	B	Hinge pin, upper
36A	293 12 83-01/0	A	B	Hinge, lower, left
36B	293 12 83-02/8	A	B	Hinge, lower, right
37	293 12 87-01/1	A	B	Hinge pin, middle
38	293 12 86-01/3	A	B	Hinge pin, lower
39	734 49 04-03/7	A	B	Washer
54	293 19 76-01/9	A	B	Retainer,
55	724 32 91-61/9	A	B	Screw, M4x12, zinc plated
57	293 06 64-01/2	A	B	Protection plate
60	293 18 77-00/1	A	B	Sign plate
61	293 12 81-01/4	A	B	Runner, right
62	293 12 81-02/2	A	B	Runner, left
63	293 12 82-08/7	A	B	Base front
64	293 07 11-02/9	A	B	Insulation
65	293 18 76-01/1	A	B	Switch
66	293 16 28-02/4	A	B	Strip sealing
67	293 12 85-01/5	A	B	Coverplate
68	293 15 04-01/9	A	B	Reinforcement
70	293 12 84-02/6	A	B	Plug, dark grey
75	293 15 11-01/4	A	B	Bracket
76	729 52 21-01/9	A	B	Screw, RXS, B4x6,5, zinc plated
77	293 15 10-03/2	A	B	Plug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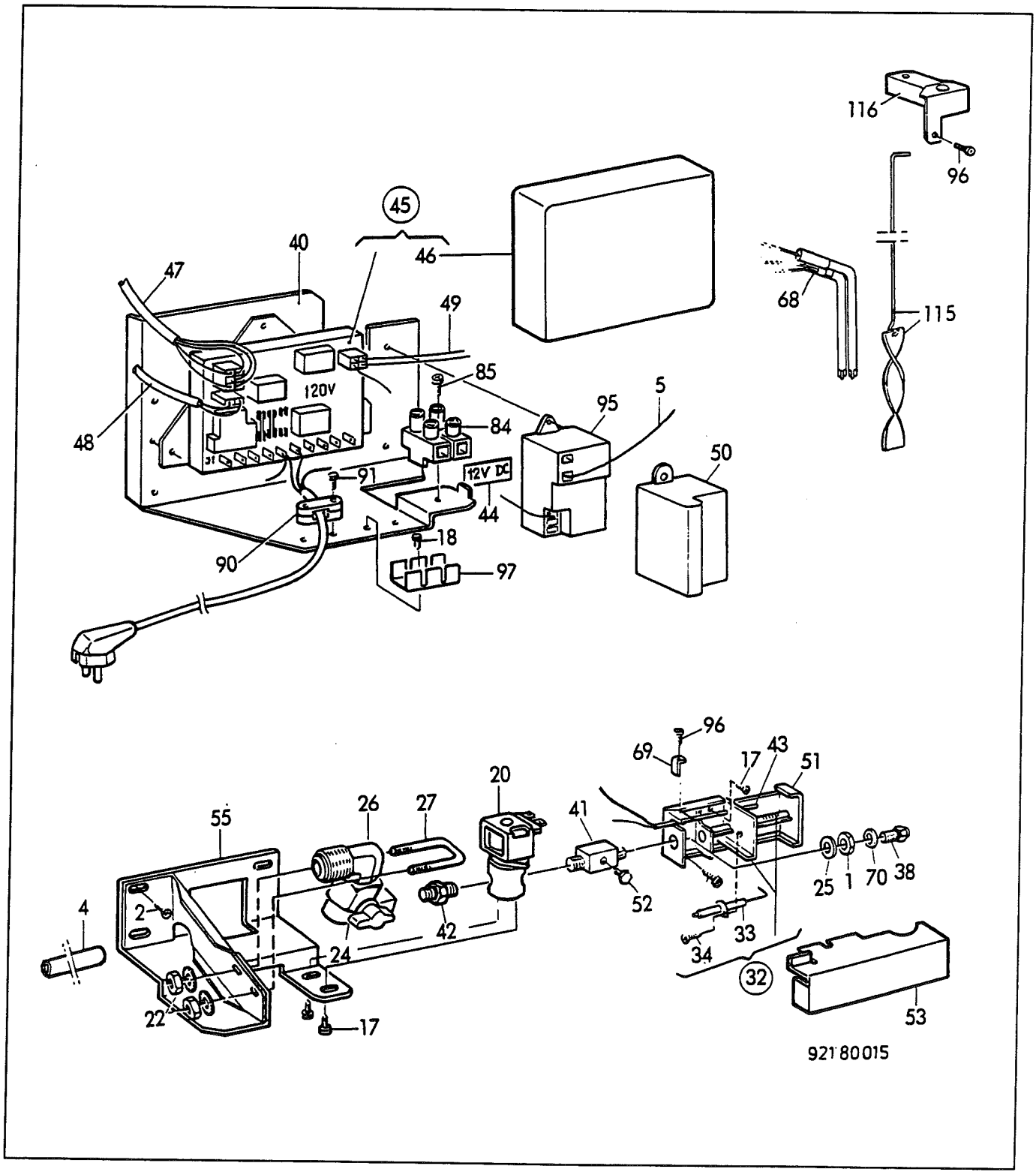
A = RM2807 (921 59 06-01, 921 59 14-01)
B = RM2807 (921 59 08-01, 921 59 16-01)

POS. NO	PART NO			DESCRIPTION
3	200 75 35-03/8	A	B	Shelf
4	200 76 05-00/5	A	B	Cooling flange
5A	293 11 17-05/1	A	B	Shelf
6	725 23 30-13/4	A	B	Screw, M6S, 5x2O, FN
7A	200 26 52-26/7	A	B	Shelf, D approx 7,5"
7B	293 01 33-11/7	A	B	Shelf, D approx 12"
7C	200 26 52-25/9	A	B	Shelf, D approx 12", 2 pieces
8	731 43 14-13/4	A	B	Nut, M5, brass, FN
9	200 76 49-01/1	A	B	Plate
10	729 54 22-11/2	A	B	Screw, RXS, B10x38, FN
12	293 04 00-00/3	A	B	Ice tray
13	200 73 93-02/4	A	B	Shelf lock, outer
14	200 73 92-02/6	A	B	Shelf lock, inner
18	200 27 26-02/0	A	B	Box vegetable, 2 pieces
26	200 76 10-01/3	A	8	Drip tray
27	200 40 44-09/1	A	B	Cover
28	294 08 25-00/9	A	B	Switch door
30	293 07 35-01/0	A	B	Conductor
38	200 40 42-00/4	A	B	Support thermostat
40	200 40 43-00/2	A	B	Lamp screen
42	293 07 44-01/2	A	B	Lighting
43	200 72 90-00/6	A	B	*Lamp, 10W, 12V
44	293 04 87-00/0	A	B	Lid
47	200 40 56-04/6	A	B	Cover
48	200 12 81-01/9	A	B	Locking pin
52	729 52 83-40/7	A	B	Screw, RXS, B6x16, stainless
58	293 10 06-01/5	A	B	Coverplate
59	293 06 11-01/3	A	B	Washer
75	293 18 82-00/1	A	-	Sign plate
	293 18 83-00/9	-	B	Sign plate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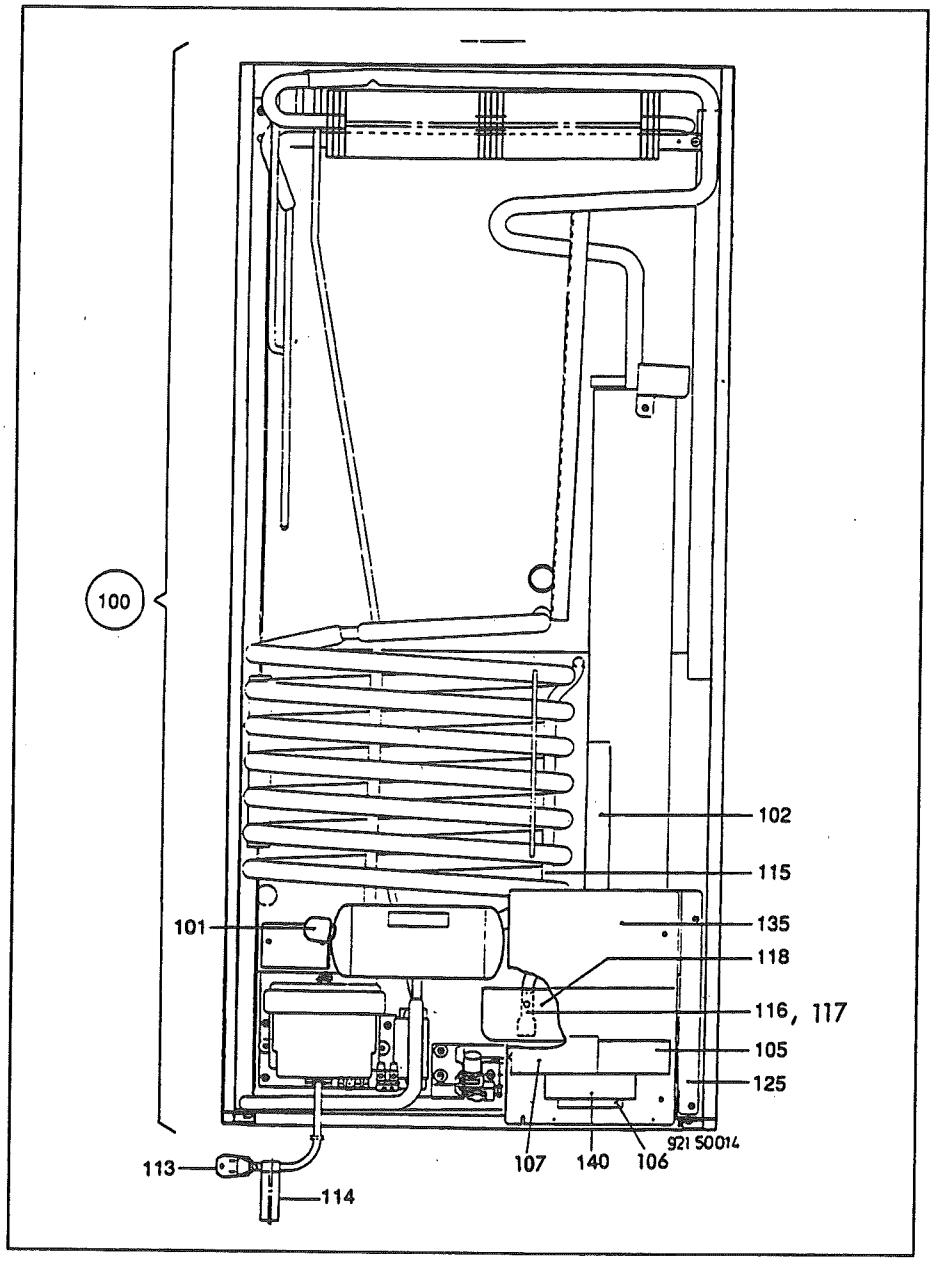
A = RM2807 (921 59 06-01, 921 59 14-01)
B = RM2807 (921 59 08-01, 921 59 16-01)

POS. NO	PART NO			DESCRIPTION
1	14 02 07-04/4	A	B	Nut
2	724 13 28-61/1	A	B	Screw, M5x14, zinc plated
4	293 20 01-01/5	A	B	Hose
5	200 76 68-05/2	A	B	Conductor, electrode
17	724 12 87-61/9	A	B	Screw, M4x8, zinc plated
18	724 12 89-61/5	A	B	Screw, MRX, M4x10, zinc plated
20	294 32 98-00/6	A	B	Valve solenoid
	294 32 86-00/1	A	B	Nut lock
24	294 32 99-00/4	A	B	Valve gas
25	734 58 42-01/2	A	B	Washer
26	293 19 16-01/5	A	B	Nipple
27	294 32 85-00/3	A	B	Bolt,U
32	293 06 97-02/0	A	B	Burner
33	293 03 79-00/9	A	B	* Electrode
34	729 52 21-01/9	A	B	* Screw, RXS, B4x6,5, zinc plated
38	200 74 19-21/7	A	B	Jet, no. 58
40	293 18 22-01/5	A	B	Retainer
41	293 18 24-01/1	A	B	Nipple
42	293 18 25-02/6	A	B	Nipple
43	293 18 26-01/6	A	B	Thermocouple
44	293 18 27-00/6	A	B	Sign plate
45	293 18 42-0113	A	-	Circuit board cpl. with cover
	293 18 43-01/1	-	B	Circuit board cpl. with cover
46	293 18 58-01/9	A	B	* Cover
47	293 18 62-01/1	A	B	Conductor, circuit card
48	293 18 63-01/9	A	B	Conductor, thermistor
49	293 18 64-01/7	A	B	Conductor, gas valve
50	293 18 86-01/0	A	B	Cover
51	293 19 13-01/2	A	B	Burner housing
52	16 93 80-00/3	A	B	Screw
53	293 15 72-01/6	A	B	Protection plate
55	293 19 15-01/7	A	B	Cantilever
68	17 37 42-16/4	A	B	Heater, 325W, 120 V
	17 37 57-06/3	-	B	Heater, 215W, 12 V
69	293 06 60-01/0	A	B	Retainer
70	200 74 57-00/1	A	B	Washer
84	293 04 63-01/9	A	B	Terminal block
85	729 52 87-40/8	A	B	Screw, RXS, B6x25, stainless
90	56 10 14-01/0	A	B	Ant-strain clip
91	729 52 85-40/2	A	B	Screw, RXS, B6x19, stainless
95	293 11 32-01/9	A	B	Spark ignition device
96	729 52 79-01/7	A	B	Screw, RXS, B6x10, zinc plated
97	293 03 27-00/8	A	B	Terminal rail
115	200 75 90-06/6	A	B	Baffle
116	293 15 40-01/3	A	B	Flue



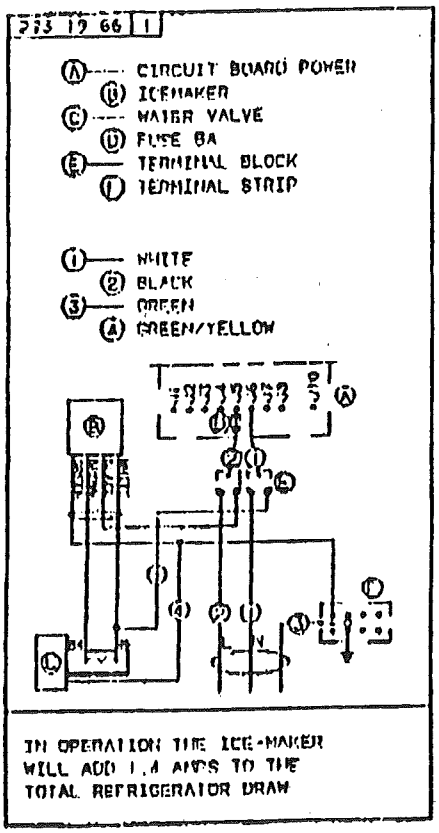
POS. NO	PART NO	DESCRIPTION
100	293 49 03-99/4	Cooling unit,2934903-01 +emb
101	17 32 28-00/8	Cap
102	293 35 57-00/7	Cover
105	293 15 03-00/3	Sign plate, "Installation clearances"
106	200 75 74-02/9	Sign plate, "Install only..."
107	200 76 89-00/9	Label, "Important"
113	200 26 99-06/0	Cord set
114	200 25 76-00/3	Label, "Warning(Electrical grounding instructions)"
115	293 15 79-04/5	Hose
116	293 18 29-01/0	Outlet tube
117	294 34 14-00/9	Clamp
118	293 18 28-01/2	Tray
125	293 07 84-01/8	Protection plate
135	293 07 85-01/5	Protection plate
140	200 25 77-00/1	Label, "When testing..."

E. TROUBLESHOOTING

(Ice Maker Fails - Does Not Make Ice)

1. Check fuse or breaker supplying 120 volts AC to refrigerator and check that RV is connected to power.
2. Check that ice level bail arm is in down position.
3. Check that the water line manual shut-off valve is open.
4. Check that ice has not jammed the level bail arm.

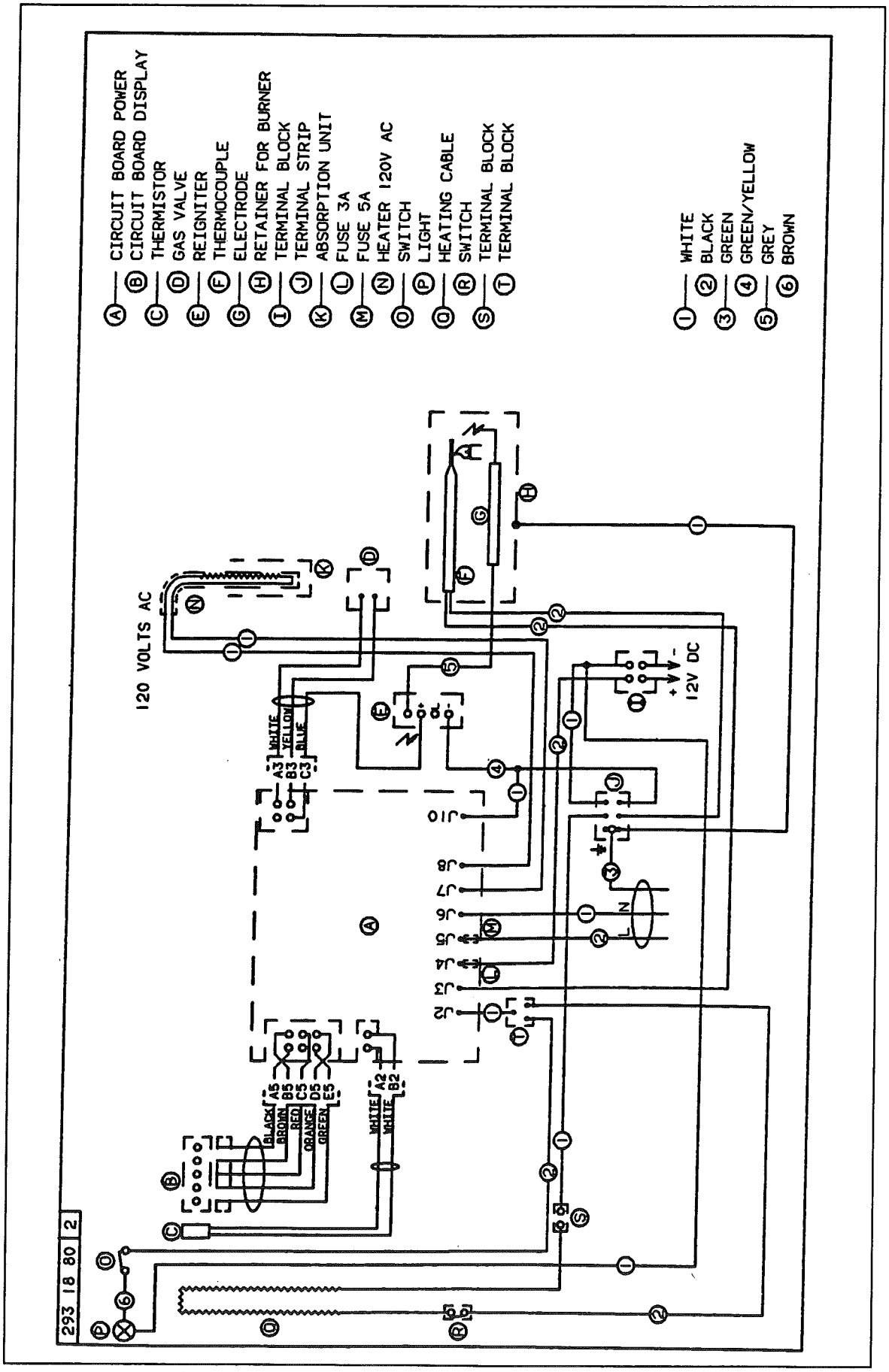
Wiring Diagram, Ice Maker

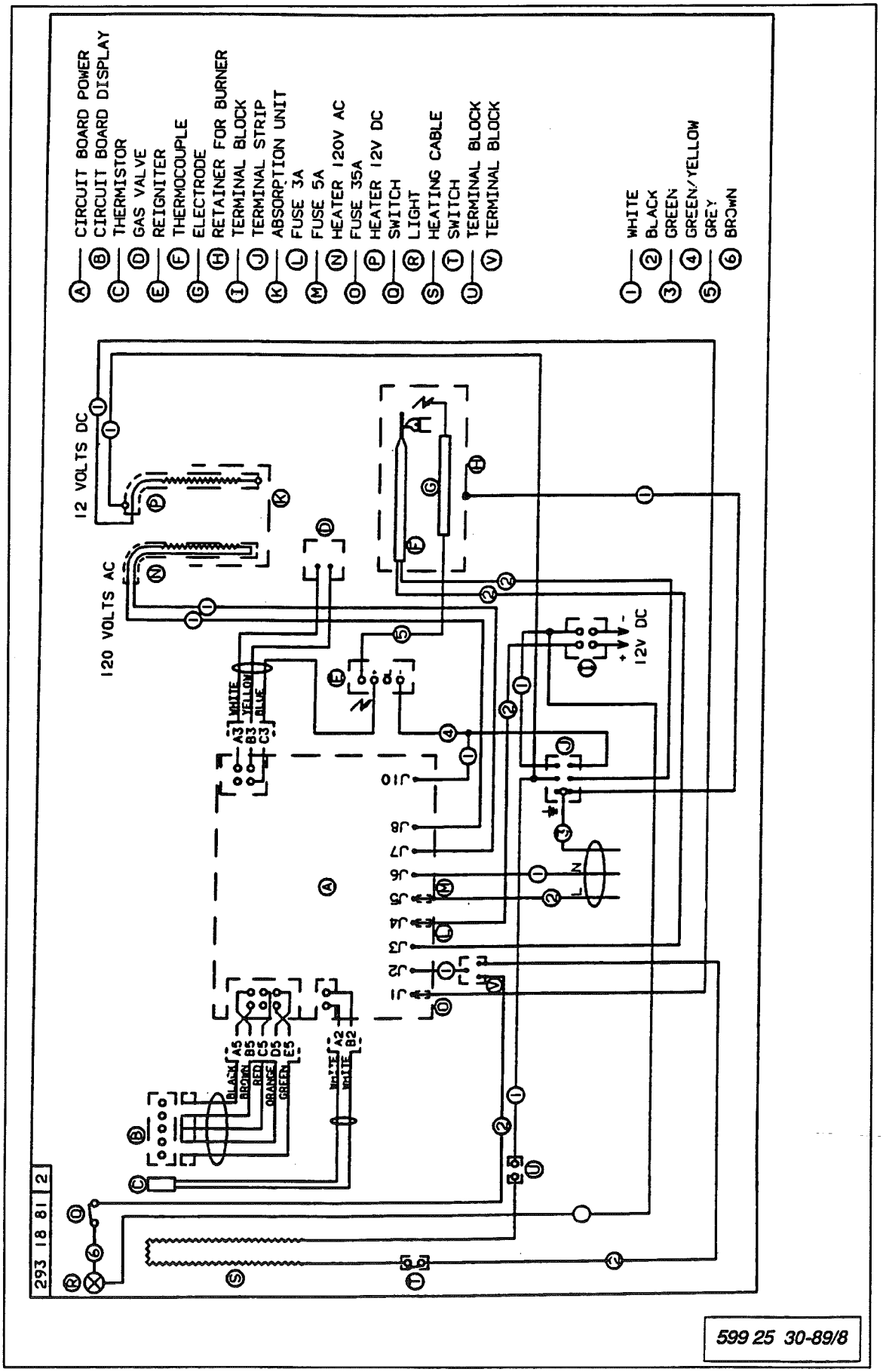


ICEMAKER KIT CPL. 293 19 90-01

Parts included in this Kit:

56	10	14-01	Cable clamp	2
293	07	18-09	Strip	1
293	08	39-01	Plastic Nut	1
293	08	41-01	Insert	1
293	09	05-04	Water hose	1
293	09	16-02	Water connection cpl.	1
293	11	63-12	Door decoration strip	1
293	14	71-01	Ice bucket	1
293	19	71-03	Icemaker	1
293	19	72-03	Water valve	1
293	19	74-01	Cover	1
293	19	75-00	Warning label.	1
293	19	84-01	Shelf	1
293	19	85-01	Shelf	1
293	19	86-0l	Water tube	1
293	19	87-01	Spacer plate	1
293	19	9600	Wiring diagram	1
724	13	28-61	Screw, M5x14,zinc plated	5
725	23	35-13	Screw, hexagon M6S,5x3O	2
729	52	25-01	Screw, RXS,B4x9,5,zinc plated	1
729	52	85-01	Screw, RXS,B6x19,zinc plated	2
729	53	40-01	Screw, RXS,B8x9.5,zinc plated	4
734	11	56-09	Washer, Stainless	2
762	91	54-58	Cable clamp	1
822	60	66-01	Instruction manual	1


A CIRCUIT BOARD POWER
B CIRCUIT BOARD DISPLAY
C THERMISTOR
D GAS VALVE
E REIGNITER
F THERMOCOUPLE
G ELECTRODE
H RETAINER FOR BURNER
I TERMINAL BLOCK
J TERMINAL STRIP
K ABSORPTION UNIT
L FUSE 3A
M FUSE 5A
N HEATER 120V AC
O SWITCH
P LIGHT
Q HEATING CABLE
R SWITCH
S TERMINAL BLOCK
T TERMINAL BLOCK
1 WHITE
2 BLACK
3 GREEN
4 GREEN/YELLOW
5 GREY
6 BROWN
120 VOLTS AC
12V DC
293 18 80 2


A CIRCUIT BOARD POWER
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K ABSORPTION UNIT
L FUSE 3A
M FUSE 5A
N HEATER 120V AC
O FUSE 35A
P HEATER 12V DC
Q SWITCH
R LIGHT
S HEATING CABLE
T SWITCH
U TERMINAL BLOCK
V TERMINAL BLOCK
1 WHITE
2 BLACK
3 GREEN
4 GREEN/YELLOW
5 GREY
6 BROWN
12 VOLTS DC
120 VOLTS AC
12V DC
293 18 81 2
599 25 30-89/8

REFRIGERATOR

Models 7030

Manufacturer:

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

How to Start the Refrigerator

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

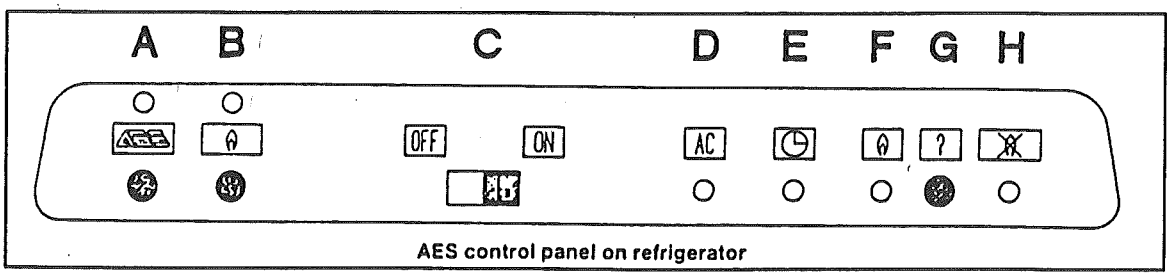
Leveling

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.

Gas Operation



AES control panel on refrigerator

Before starting the refrigerator check the gas valve in the piping. Do not forget the valve on the rear of the refrigerator.

1. To start the refrigerator set the switch C to position ON. The lamp above push button A will now turn green.
2. Turn the thermostat knob inside the cabinet to a suitable setting, e.g. start with normal position.
3. To shut off the refrigerator set the switch C to position OFF.

General Information

This refrigerator is equipped with an Automatic Energy Selector (AES) control system, which can automatically select the most suitable energy source which is available - either 120 volt AC, or LP gas operation. The system can be set by the user to be fully automatic, or if desired, LP gas only.

Fully Automatic Mode 

When switch C is set to ON the lamp above push button A will light up (green) indicating that the control system is in the fully automatic mode.
In this mode 120 volt AC operation has first priority, meaning the refrigerator will operate on 120 volt AC whenever it is available. If 120 volt AC is not available, the system will switch to LP gas operation.

LP Gas Only 

If push button B is pressed the refrigerator will operate only on LP gas, even if 120 volt AC is available.

Mode Indicator Lamps

At the right side of the AES control panel are 3 indicator lamps which give you information about the operation of the AES system. When the push button G is depressed one of these indicators will light up, showing which operating mode the system is using. There is an additional indicator lamp H at the far right side of the control panel. This indicator will light only when there has been a flame failure in the LP gas operation mode. (For further information see flame failure during LP gas operation.

120 Volt AC Operation

Since 120 volt AC is usually the most economical energy source for operation of the refrigerator the AES control system is designed to select this mode whenever it is available (except when the push button B, LP gas only mode is selected). A 120 volt heating element attached to the boiler tube provides the heat to operate the cooling system. The thermostat inside the refrigerator cabinet turns power on and off to this element as required to maintain the desired temperature.

LP Gas Delay Mode

When the vehicle engine is turned off the AES system initiates a delay cycle which prevents the refrigerator from operating on LP gas for about 25 minutes. The purpose of the delay cycle is to avoid having a gas flame present during a refueling stop at a gas station. (See **WARNING**).

WARNING: In travel trailer application it is necessary for your dealer/hitch installer to wire the tow vehicle and trailer to obtain this feature. In late 1993 model trailers, Airstream has run a wire from the refrigerator to the hitch for this feature. A wiring diagram is included at the end of this section.

If the vehicle engine is restarted during this delay period the LP gas operation will not start until the delay period is over. This means that each time the vehicle engine is stopped, the complete 25 minute delay cycle will take place.

If 120 volt AC becomes available during this delay cycle the AES system will start operating in the 120 volt AC mode immediately.

If the RV is stopped somewhere other than at a gas station you may wish to cancel the delay cycle. To do this set the main system switch C to OFF for several seconds, then back to ON, and the system will start operating in the LP gas mode.

LP Gas Operation

When there is no electrical power available (120 Volt AC) or if the indicator lamp above push button B is lit, the AES system will switch to LP gas operation. When the thermostat in the refrigerator cabinet calls for cooling the following sequence takes place:

1. A high voltage spark is created above the burner.

2. Power is sent to a solenoid which opens the gas control, allowing LP gas to flow to the burner. The spark ignites the LP gas and the small flame then provides heat for the boiler, and the cooling process begins.

3. A sensor electrode mounted above the burner tube monitors the flame continuously. If the flame should fail for any reason, the high voltage spark will start immediately, and relight the flame.

When the desired temperature is reached the thermostat will shut off the gas flame completely, and the system will remain on standby until cooling is required again.

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 from the burner flame, causing a fire or an explosion. For your safety it is recommended that all LP gas appliances that are vented to the outside should be shut off when refueling.

The AES system is designed to avoid an LP flame during refueling stops by use of the delay cycle explained above. However, you must remember that this delay cycle will be activated only if the refrigerator is properly connected to the vehicle engine electrical circuit (see INSTALLATION, Ignition Lock Connection).

If the refrigerator is not connected to the engine electrical circuit, the refrigerator must be shut off during refueling stops. Set the main system switch C to OFF, and after the vehicle has been moved away from the refueling area set the switch back to ON.

Flame Failure During LP Gas Operation

If the gas flame does not ignite when the burner cycle begins, or if the flame fails during the burner cycle, the high voltage spark will continue sparking up to 3 minutes. At that time the gas control will completely shut off the gas flow, the high voltage spark will cease and the indicator lamp H will light up. LP gas operation will not restart as long as this indicator is lit. This shutdown is to make sure that the LP gas flow does not continue for a long time.

To restart LP gas operation, first set switch C to OFF for five seconds, then back to ON. The flame failure indicator will go off, and the system will start another cycle for ignition.

If the refrigerator has not been used for some time, or if the supply tanks have just been refilled, air may be trapped in the LP gas supply line. To purge this air from the lines may require resetting the ON/OFF switch three or four times.

If repeated attempts to start LP gas operation are not successful, check to make sure the LP supply tank is not empty. Also check all manual shut off valves in the LP gas supply line to make sure they are open. If the problem is still not corrected, contact a service center for assistance.

When the flame failure indicator lamp H comes on the mode indication lamp (green light) will go off, indicating that all operation has stopped. However, if 120 volt AC becomes available during this period, the mode selection lamp (green light) will come on, indicating that the refrigerator is operating on another energy source, the indicator lamp H will remain lit until there is an OFF/ON operation off the main system switch C.

Low Voltage Monitor on l2 Volt DC Control System

The AES system requires 12 volt DC power at all times to operate on any energy source, and to operate properly this DC power must be at 9.5 volts or higher. If this voltage should drop below 9.5 volts the AES system will switch to an emergency cooling mode:

1. The mode indicator lamp (green light) will go off.
2. The system will revert to continuous LP gas operation - with no thermostat control.

The refrigerator will continue operating in this mode, without the thermostat in the circuit, until the DC power supply is increased to 10.5 volts. At that time the mode indicator lamp (green light) will come on and normal operation will resume. During this low voltage condition the interior light will continue to operate normally.

Climate Control Heater - RM7030

In certain temperatures and humidity conditions, the metal frame between the refrigerator doors can sweat. The refrigerator is equipped with a 12 volt electric heater that warms the frame to prevent condensate formation. The climate control heater is turned on with a switch ("J") located on the thermostat housing inside the fresh food compartment. See Fig. 11.

The switch can be left on continuously or turned OFF and ON as temperature and humidity condition justify. **NOTE**: The climate control will draw 12 volt DC power continuously. It should be turned OFF when a charging source in **NOT** available.

HOW TO USE THE REFRIGERATOR

Food Storage Compartment

The food storage compartment is completely closed and unventilated, which is necessary to maintain the required low temperature for food storage. Consequently, foods having a strong odor or liable to absorb odors should be covered. Vegetables, salads etc., should be covered to retain their crispiness. The coldest positions in the refrigerator are underneath the cooling evaporator and at the bottom of the refrigerator. The least cold positions are on the upper door shelves. This should be considered when different types of food are placed in the refrigerator.

Frozen Food Storage Compartment

Quick frozen soft fruits and ice cream should be placed in the coldest part of the compartment, which is on or just below the freezer shelf. Frozen vegetables, on the other hand, may be stored in any part of the compartment.

This compartment is not designed for the deep or quick freezing of food. Meat or fish foods, whether raw or prepared, can however, also be stored in the frozen food storage compartment, provided they are precooled in the refrigerator. They can then be stored about three times as long as in the fresh food storage compartment. To prevent food from drying out, keep it in covered dishes, containers, plastic bags, or wrapped in aluminum foil.

Ice Making

Ice cubes can be made in the ice trays. These should be filled with water to within 1/4" (5mm) from the top. For faster ice making, the trays should be placed in direct contact with the freezer shelf.

To release the ice cubes seize the tray with both hands and twist the tray. Cubes not required should preferably be replaced in the tray. Refill the tray with water and replace the tray on the freezer shelf.
Ice making is accelerated if the thermostat knob is turned to setting MAX. It is a good idea to do this a few hours before an anticipated need for ice, but be sure to turn the knob back to normal setting when the ice is formed or the food in the lower cabinet may be frozen.

Defrosting

Shut off the refrigerator by setting switch C to OFF. Empty the refrigerator, leaving the drip tray under the finned evaporator, and the cabinet and freezer doors open. If desired, defrosting may be speeded up by filling the ice trays with hot water and placing them on the freezer shelf. When all frost is melted, empty the drip tray and dry the interior of the refrigerator with a clean cloth. Replace the drip tray and ice tray. Replace all food and set the thermostat to MAX for a few hours. Then reset the thermostat to its normal position. NOTE: On the RM 3804 the drip tray is placed on the rear side of the refrigerator.

Cleaning

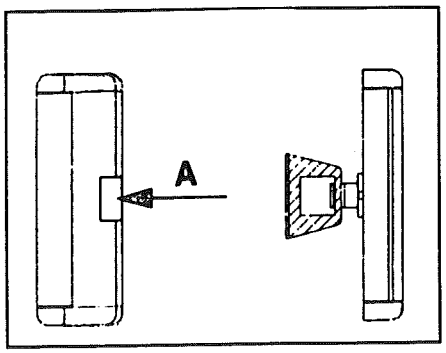
To clean the interior lining of the refrigerator, use lukewarm weak soda solution. The evaporator, ice trays and shelves must, however, be cleaned with warm water only. Never use strong chemicals or abrasives to clean these parts or the protective surface will be damaged. It is important to always keep the refrigerator clean.

To Shut Off the Refrigerator

To shut off the refrigerator, set switch C to the OFF position. If the refrigerator will not be in operation for a period of weeks, it should be emptied and cleaned and the doors left ajar. Use the travel latch, integrated in the handle, to lock the doors in the open position (See Fig. 12).

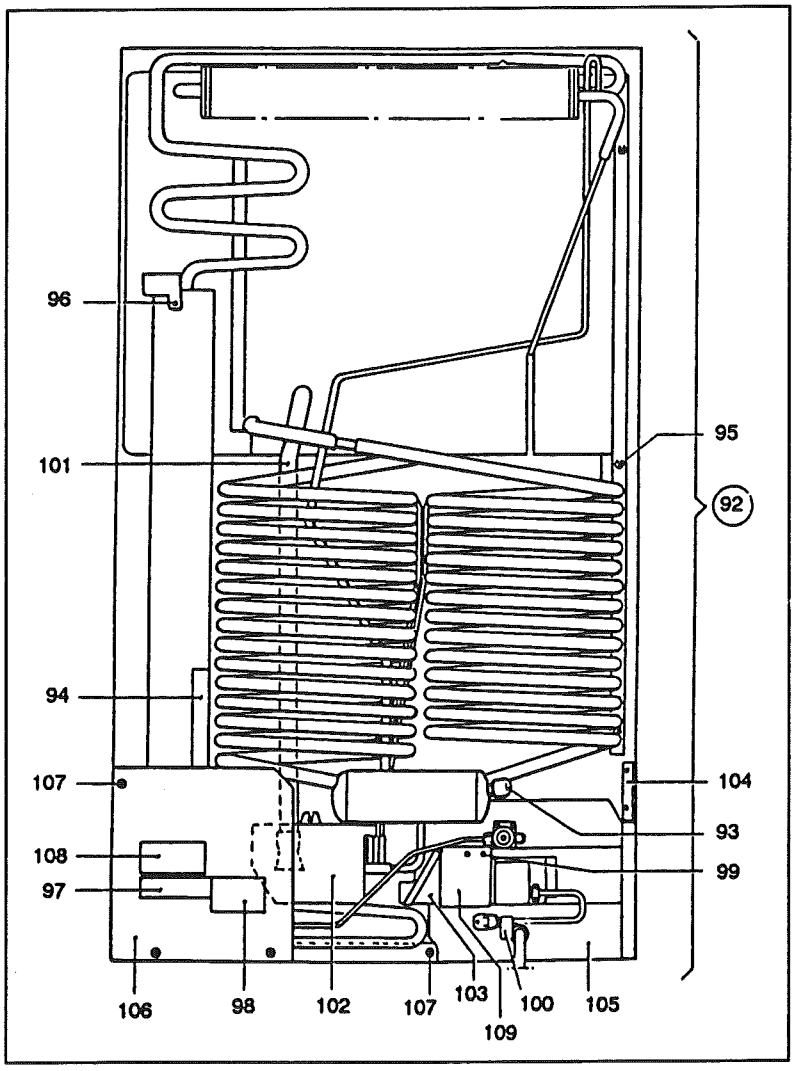
To activate the airing position of the hook, push the square button A forward at the same time as you fit the hook into the clamp. To release the door from airing position, pull the handle, release, and the hook will return to rest position.

Fig. 12

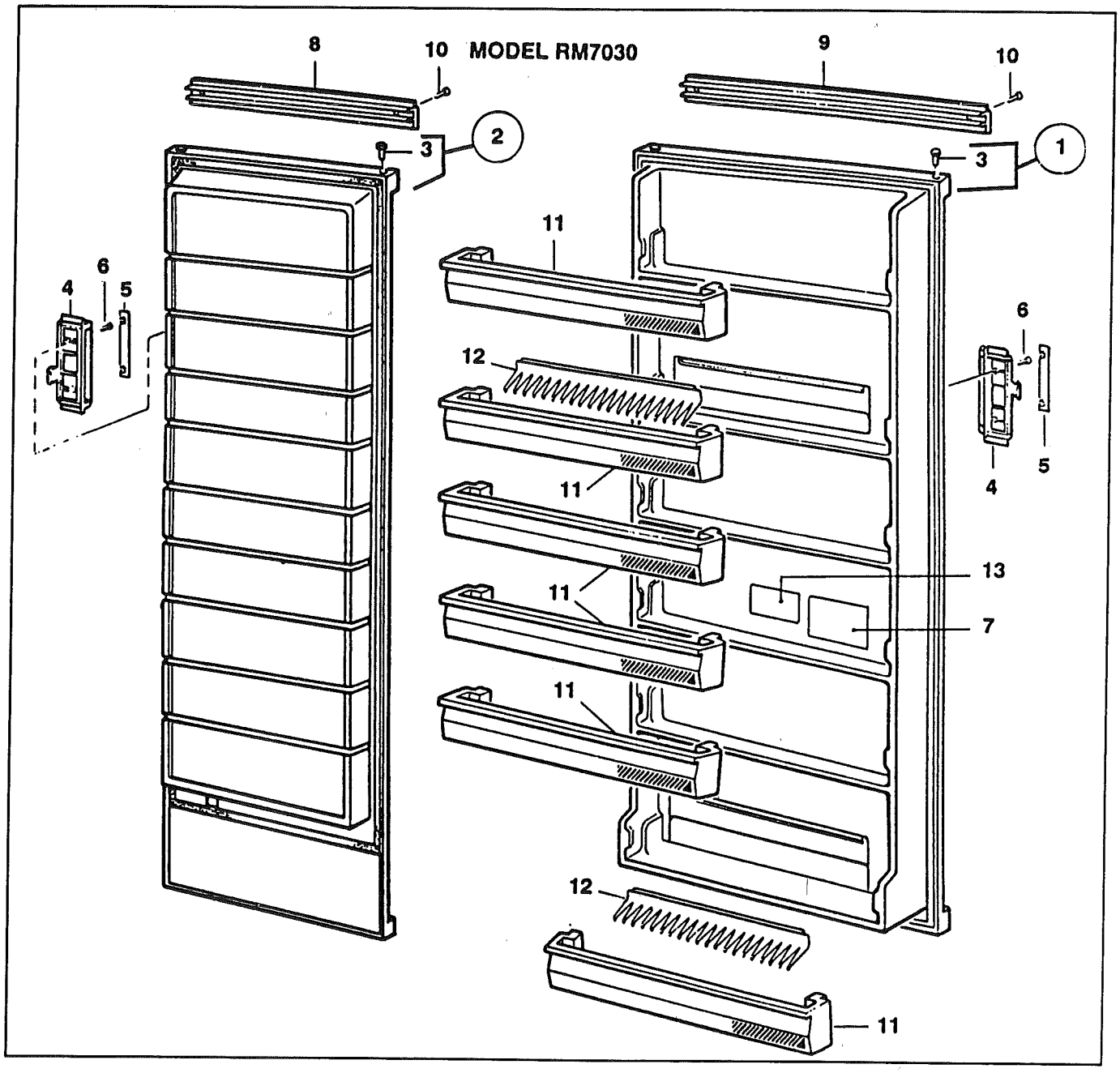


CAUTION: Do not store explosive substances in the refrigerator, such as cigarette lighter gas, petrol, either or the like.

REAR VIEW
MODEL RM7030



Index #	Part #	Description
92	2934940996	Cooling unit
93	0173228008	Cap
94	2933557023	Cover
95	7241328611	Screw, M 5x14, zinc plated
96	7295279017	Screw, RXS, B 6x10, zinc plated
97	2002577001	Label, "Warning label. . ."
98	2930750001	Label, "Caution. . ."
99	7298279113	Screw, B 6x9, 5, zinc plated
100	2002576003	Label, grounding instruction
101	2931579037	Hose, drain, complete
102	2931492017	Tray
103	2931473017	Protection plate
104	2931499012	Bracket
105	2931608018	Plate
106	2931485011	Protection plate
107	7295340017	Screw, RXS, B 8x9, 5, zinc plated
108	2007689009	Label, "Important. . ."
109	2931486019	Protection



DOOR COMPONENTS

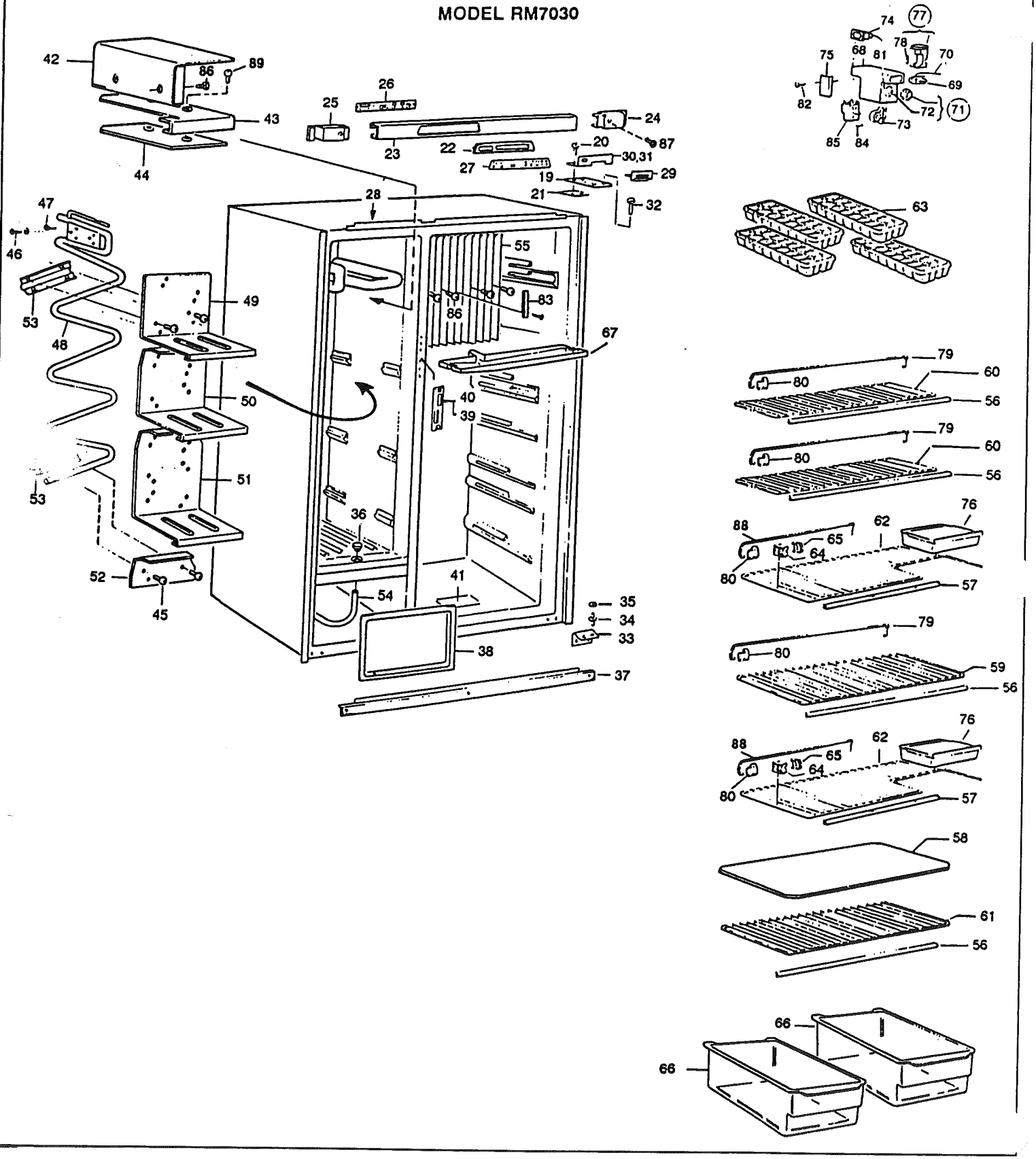
Index #	Part #	Description
1	2931419119	Door, refrigerator
2	2931420117	Door, freezer
3	2931171025	Bushing, door hinge pin
4	2931398016	Handle
5	2931393017	Insert, handle
6	7295279017	Screw, RXS, B 6x10, zinc plated
7	2002356000	Label
8	2931163063	Decoration, freezer
9	2931163071	Decoration, refrigerator
10	7295229012	Screw, B 4x16, zinc plated
11	2931418012	Shelf door, 6 req.
12	2931497016	Holder, bottle, 2 req.
13	2931620005	Label

CABINET COMPONENTS

Index #	Part #	Description
19	2931291013	Hinge, upper
20	7241328611	Screw, M 5x14, zinc plated
21	2931292011	Spacer
22	2931490011	Retainer
23	2931463018	Decoration, front
24	2931462010	Front part, right
25	2931462028	Front part, left
26	2931309021	Circuit board, upper 2W
27	2931295022	Operating panel
28	2931304006	Label, "Installations . ."
29	2931574012	Gasket
30	2931459016	Plate, mounting - left
31	2931459024	Plate, mounting - right
32	2931624015	Hinge pin, upper
33	2931458018	Hinge, lower
34	2931623017	Hinge pin lower
35	7344904037	Washer
36	2931715011	Lid
37	2931464016	Strip, front
38	2931488015	Flap
39	2931716019	Lock plate, not shown
40	2931718015	Cover
41	2931315002	Sign plate, "Instruction. . ."
42	2931476010	Plate
43	2931477018	Shelf
44	2931478016	Plate
45	2801014016	Screw
46	2801015013	Screw
47	2801015021	Screw
48	2931474015	Freezer unit
49	2931480012	Shelf
50	2931481010	Shelf
51	2931482018	Shelf
52	2931483016	Plate, cover
53	2931484014	Bracket
54	2931579037	Hose,drain (complete)
55	2931661017	Cooling flange
56	2005111402	Strip, decoration, 4 req.
57	2005111410	Strip, decoration, 2 req.
58	2931117069	Shelf, plexiglass, 1 req.
59	2931541011	Shelf, 1 req.
60	2931541029	Shelf, 2 req.
61	2931541037	Shelf, 1 req.
62	2931542019	Shelf, 2 req.
63	2930400003	Ice tray, 4 req.
64	2117392026	Shelf lock, inner, 6 req.
65	2007393024	Shelf lock, outer, 6 req.
66	2931471011	Crisper, 2 req.
67	2931663013	Drip protection
68	2004044109	Cover
69	2940825009	Switch, door
70	2930735036	Lead, door switch
71	2930625047	Knob
72	0163382005	Spring
73	2004042004	Support, thermostat
74	2931049015	Switch
75	2004043002	Lamp screen
76	2930136003	Box, 2 req.
77	2930744012	Lamp, complete
78	2007290006	Lamp, 10W, 12V
79	2007337088	Rack, L=13", 3 req.
80	2930693045	Retainer, 10 req.
81	2001354030	Index
82	7295283407	Screw, RXS, B 6x16 stainless
83	2002798003	Clamp
84	2001281019	Locking pin
85	2930814039	Thermostat
86	2801015013	Screw
87	2930132069	Plug
88	2007337096	Rack, L=6.5", 2 req.
89	7252330134	Screw, MSS 5x18 MPL

CABINET COMPONENTS

MODEL RM7030



RANGE AND OVEN

Manufacturer: Magic Chef, Inc.
28812 Phillips Street
Elkhart, Indiana 46514
Phone: 219-264-9578

The range and oven in your Airstream works on LP gas. Electrical power used is the by 12 volt oven light in some models.

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

We find many experienced RVers do not use the pilot light for the top burners, preferring the flint type hand lighters instead. The main reason the pilots aren't used is due to the size of the trailer and the climate in which most trailers are used. The pilots are very small, but, of course, produce heat that may be noticeable in the trailer. With limited counterspace it is normal to set articles on the closed top of the range. If the day is hot and the article is plastic it may become deformed from the low but constant heat of the pilot.

Operation Principle

Top Burners

The manifold along the front of the top burner section is continually pressurized as long as the LP tank valve is open. Upon opening any of the burner valves this gas is injected through the burner orifice and into the venturi (mixing tube) where it mixes with primary combustion air and flows on to the burner. At this point, the gas-air mixture is evenly discharged through the ports in the burner cap where ignition occurs (by use of a match or pilot light if applicable). The amount of primary air may be adjusted on earlier models to alter combustion characteristics.

Oven

(Main Burner)

The fuel supply for the oven burner is taken from the manifold in the top section of the range. The tube leading from the right hand side of the manifold extends down the rear of the range and into the automatic oven safety valve. (On newer models this gas flow is taken at the thermostat mounted on the manifold. A tube leads from the thermostat to the oven safety valve.) When this valve opens, gas passes through it to the burner orifice. The orifice meters the gas flow into the burner venturi, where it mixes with primary combustion air and enters the burner casting. The oven pilot ignites this mixture resulting in flame evenly spread around the burner.

(Pilot Burner)

The pilot burner is actually two pilots in one:

1. The STANDBY PILOT is that portion of the pilot light which burns constantly, providing that the LP tank and manifold valve (if applicable) are on. It ignites the gas-air mixture at the burner when the oven valve opens. It also provides the base for the heater pilot.

2. The HEATER PILOT is actually an extension of the standby pilot. It is on only when the oven thermostat "calls for heat". The purpose of the heater pilot is to open the oven safety valve thereby enabling gas to flow to the oven burner.

(Thermostat)

The thermostat is probably the most important component part in the functioning of the oven. It regulates the temperature of the oven keeping it at the desired cooking temperature. Thus, the thermostat is conducive to excellence in oven cooking. It is the thermostat (directly behind the oven control knob) that increases the "Standby Pilot" to the "Heater Pilot" flame.

The thermostat "senses the oven temperature by means of a "thermal bulb" located in the top of the oven. This bulb is filled with gas and connected to a bellows in the thermostat by a capillary tube. When the oven is on: (l) the bulb heats up, (2) the gas expands, (3) causing the bellows in the thermostat to expand, (4) a mechanical linkage within the thermostat shuts off the higher flow of gas to the pilot burner and throttles the amount down considerably. The pilot flame ceases to burn at the heater position, but continues at standby.

As the temperature begins falling in the oven, the above described re-occurs, except now (1) the bulb cools, (2) the gas contracts, (3) the bellows in the thermostat contracts, (4) the mechanical linkage in the thermostat then causes an increasing amount of pilot gas to flow and the pilot goes to the heater flame position.

Note: On the new model ranges the thermostat will have a "pilot off" or "pilots off" position on the thermostat knob. With the thermostat set at this position, all gas is shut off from the oven pilot "pilot off". When the thermostat is set on the "pilot off" position all gas to the top pilot and oven pilot is shut off.

(Oven Safety Valve)

This valve controls the gas flow to the main burner. The valve is operated by a thermal bulb in the heater pilot flame. This bulb is connected to a bellows in the valve by a capillary tube. When the bulb is heated it expands the mercury in it, expanding the bellows and opening the valve. The opposite occurs when the heater pilot flame subsides.

Sequence of Oven Operation:

With the thermostat set at 3500, for example, the following steps automatically occur:

a. The thermostat "calls" for heat (see thermostat operation principle).

b. The pilot flame increases to the heater position (see thermostat operation principle).

c. The oven valve opens (see "Oven Safety Valve") and lets gas into main burner.

d. Burner heats up oven and thermostat quits calling for heat.

e. Pilot heater flame subsides.

f. Oven safety valve closes.

g. Oven is ready for another cycle.

Trouble Shooting

(Top Burners)

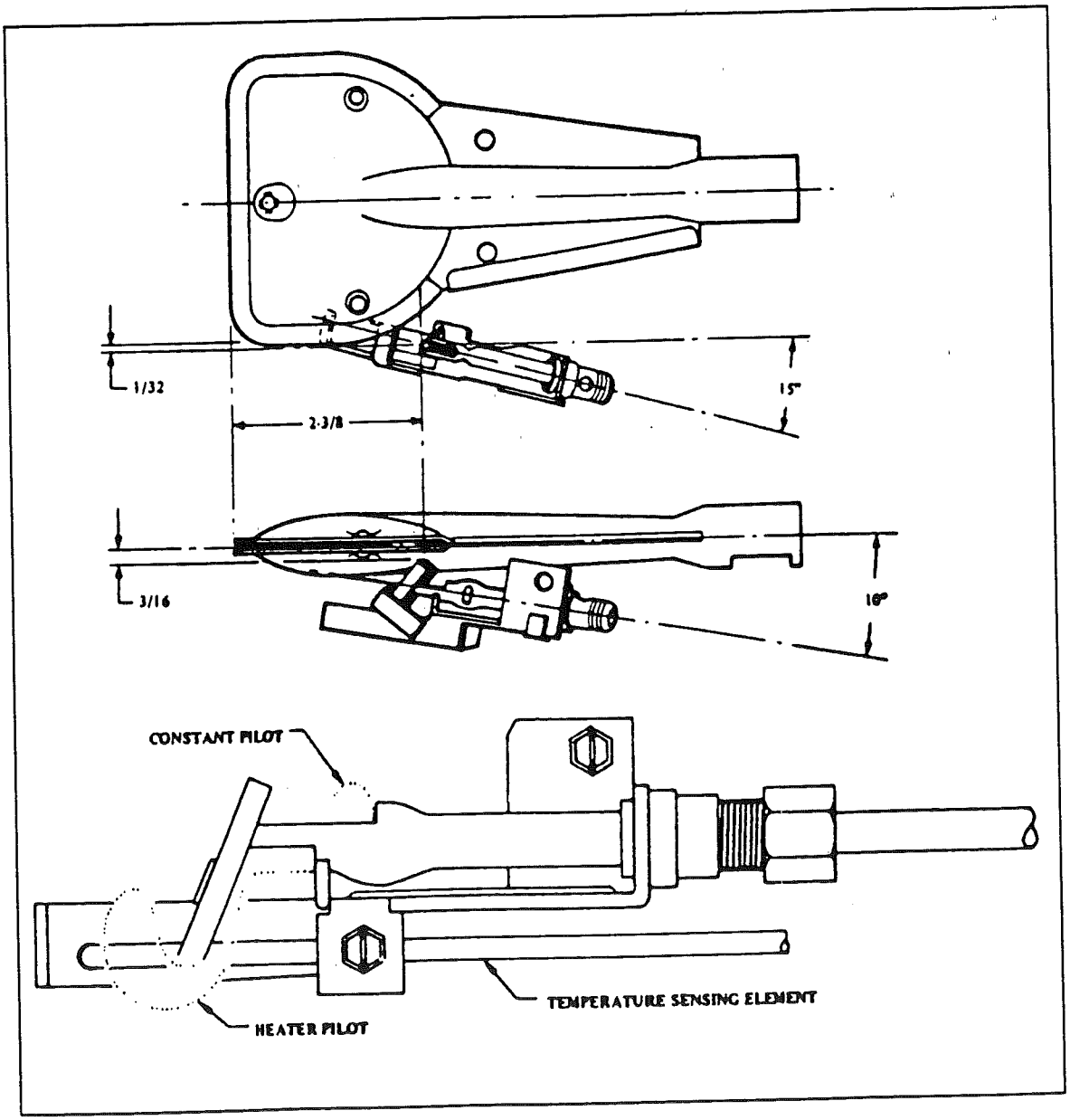
The possibility that a service call on the top burner portion of the range will require anything more than minor adjustments and/or cleaning is very remote.

Combustion problems may occasionally arise, but these can normally be attributed to an accumulation of dirt, grease, dust, or spider webs etc. in the venturi or the burner.

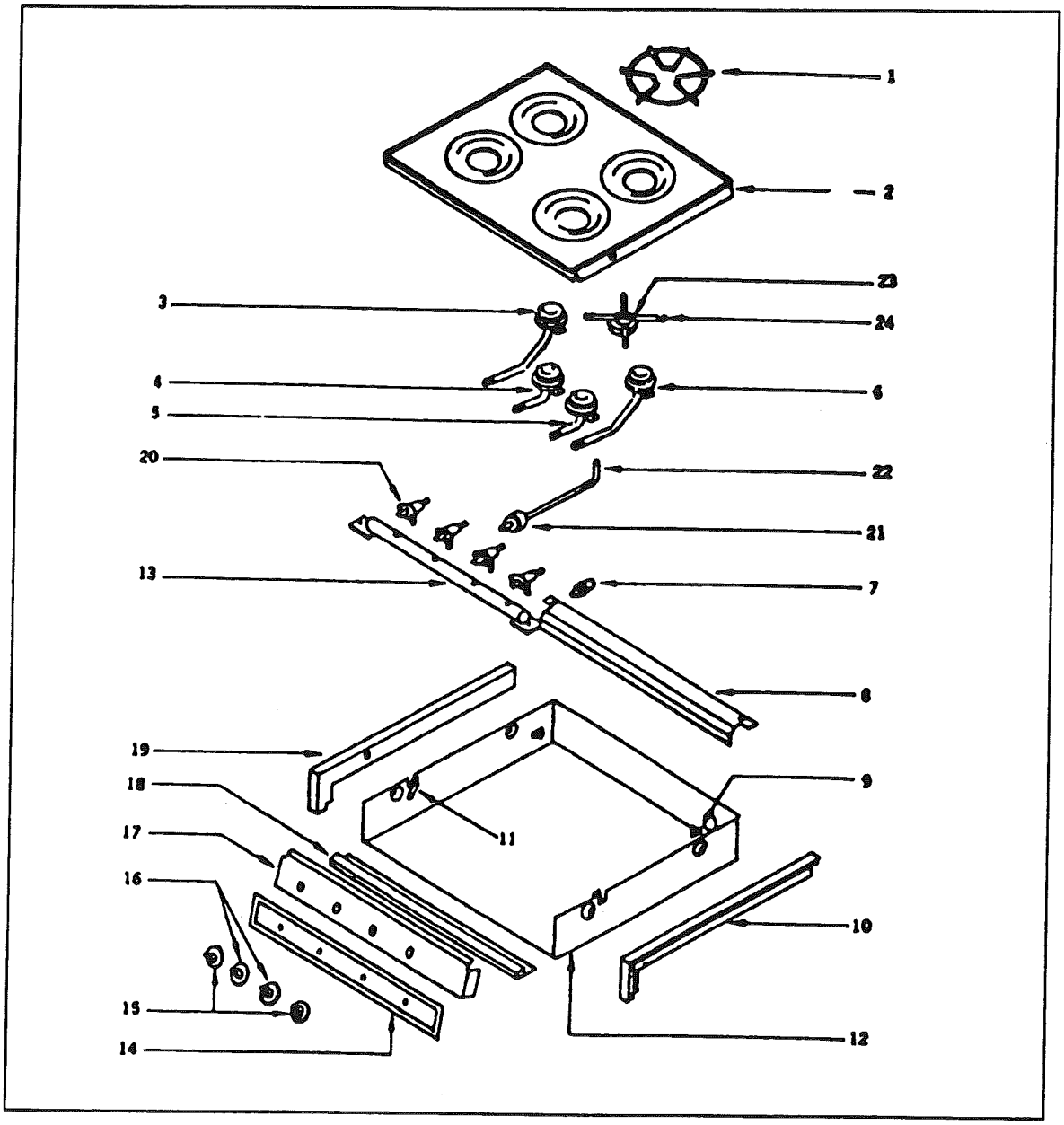
(Pilot Adjustment)

On models ordered from the factory with top burner pilots, these pilots may need to be checked in cases of (l) burners not lighting, or (2) soot accumulating within top burner section. The proper setting for this pilot is when the flame burns blue with a slight yellow tip. The tip of the flame should be about even with the top of the body of the lighter.

OVEN PILOT LOCATION

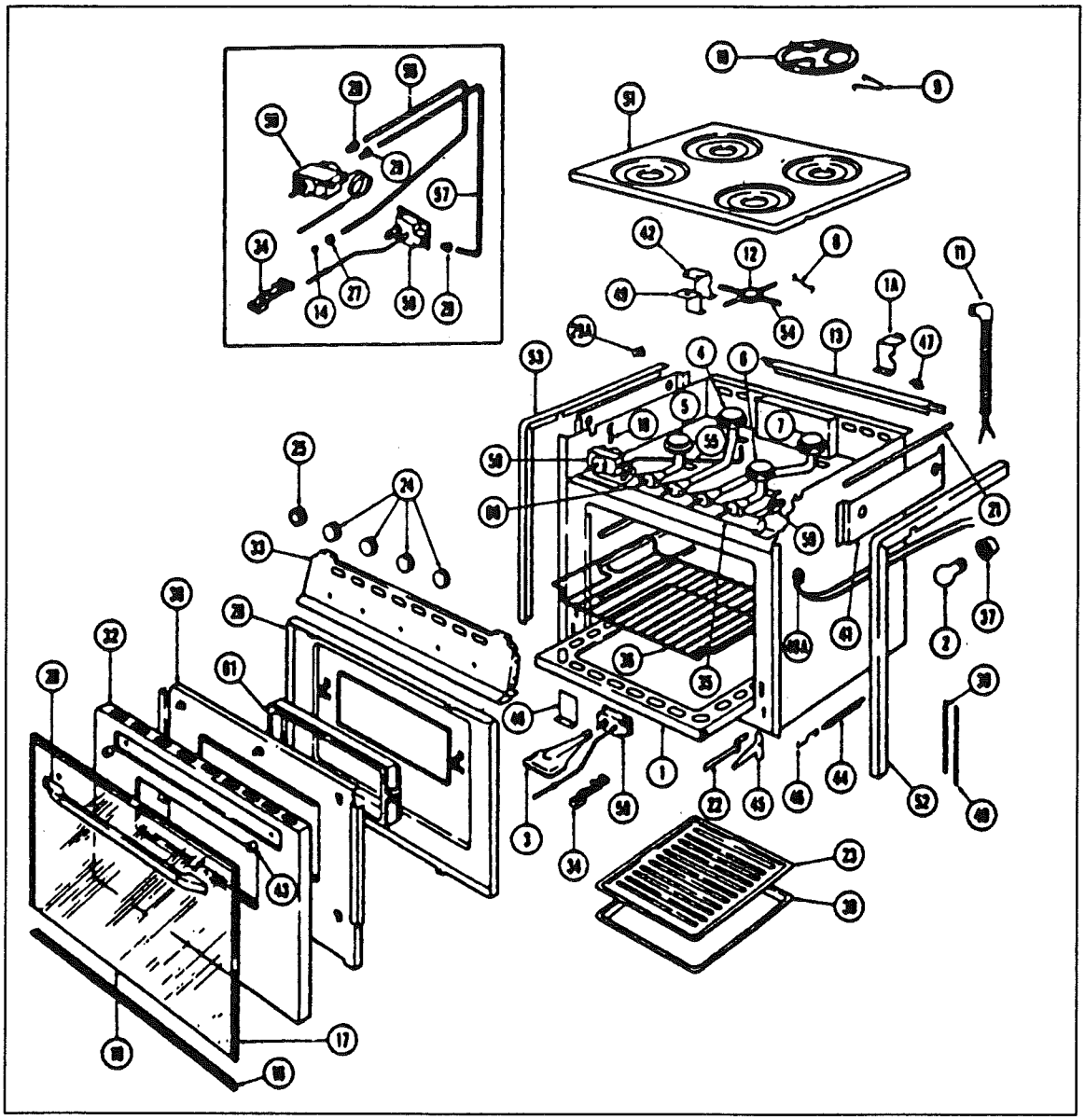


RANGE TOP



1. Burner grate
2. Main top
3. Burner, Left Rear
4. Burner, left front
5. Burner, right front
6. Burner, right rear
7. Half union
8. Top rear trim
9. Tee nut
10. Burner box trim, right
11. Main top hold down clip
12. Burner box
13. Mainfold pipe
14. Mainfold panel trim
15. Burner knob, rear
16. Burner knob, front
17. Mainfold panel back-up
18. Mainfold panel lower trim
19. Burner box trim, left
20. Burner valve
21. Top pilot filler
22. Pilot tube
23. Lighter cup assembly
24. Flashtube extension

RANGE AND OVEN ASSEMBLY



1. Bottom, oven
1A. Junction Box
2. Bulb, oven light
3. Burner, oven
4. Burner tip, left rear
5. Burner top, left front
6. Burner top, right front
7. Burner top, right rear
   Button, plug (not shown)
8. Clip, flashtube
9. Clip, grate
10. Clip, main top
    Clip, thermostat bulb (not shown)
11. Conduit assembly and service cord
12. Cup, lighter assembly
13. Deflector, flue
14. Ferrule - 1/8"
    Fitting, thermostat-inlet (not shown)
16. Frame, lower glass
17. Frame, upper glass
18. Glass, outside
19. Grates, top
20. Handle, oven door
21. Harness, tube, oven lights
22. Hinge, oven door, RH
    Hinge, oven door, LH
23. Insert, broiler pan
    Insert, burner (not shown)
24. Knob, top burner
25. Knob, thermostat
26. Liner, oven door
27. Nut, compression 1/8"
    Nut, compression 3/16"
28. Nut, loxit, 3/16"
29. Nut, loxit, 1/4"
29A. Nut, tee
30. Pan, broiler
32. Panel, oven door, black
33. Panel, manifold
34. Pilot, oven
35. Pipe, manifold
36. Rack, oven
37. Receptacle, oven light
38. Retainer, insulation
39. Retainer, seal
    Screw, door frame (not shown)
    Screw, main top clip (not shown)
    Screw, door handle (not shown)
    Screw, frame (not shown)
40. Seal, door, top
    Seal, door, side

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.
Elkgrove Village, IL 60007
201-348-9090

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

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

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

WATER HEATER

Manufacturer: Atwood Mobile Products
4750 Hiawatha Drive
P.O. Box 1205
Rockford, Illinois 61105
Phone: 815-877-7461

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

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

Electronic Ignition

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

Principle of Operation

When the switch is turned on, power is supplied to the thermostat (located inside the junction box at the back of the water heater). When the thermostat senses the water in the tank requires heat (below 120°F), its contacts close and complete the circuit to the circuit board. This will energize the coils in the dual solenoid gas valve, allowing gas to flow out of the main burner orifice, mix with air at the ventura (air adjusting slots), then flow out the end of the main burner.

Simultaneously the coil on the circuit hoard provides a high voltage current to reach the spark probe at the main burner. This ignites the gas. When the flame is sensed by the probe, current is conducted to the relay and the valve remains energized. Sparking ceases when the electrode to ground current path is altered by the presence of flame. The water heating process begins. When the water in the tank drops below 120°F, the process will automatically repeat itself.

Note: A complaint sometimes received at Airstream is the fact the water heater will not light for a while when the motorhome is first parked. The explanation is easy. The water is already hot! The motorhome water heater has a heat exchanger plumbed into the engine radiator system. As you are driving the water is being heated without your having to do a thing.

SAFETY

ECO Switch: The unit is equipped with an ECO (Energy Cut-Off) switch. This is located next to the thermostat and, should the water exceed 190° F, the contacts in the ECO switch will open and completely shut off the power to the unit.

It is unlikely, but should this occur it is necessary to move the rectangular cover from the back (inside) of the unit and manually depress the red button. The unit should then be checked before continuing use to determine why the water overheated. Refer to trouble shooting section.

Relief Valve: Each unit is equipped with a temperature pressure relief valve. Should the water in the tank exceed 201° F or 150 PSI, the valve will open and allow cold water to enter and reduce the temperature of the water or release the pressure built up.

Circuit Board Lock-Out:

Should the spark not ignite the gas, a built-in timing circuit in the circuit board will shut down and the red light next to the interior switch will come on. It is necessary to shut this switch off, wait 30 seconds, then turn switch back on. If unit again fails to light, check trouble shooting section.

Storage and Winterization Procedure for Water Heaters

Normal storage and winterization procedures would be as follows:

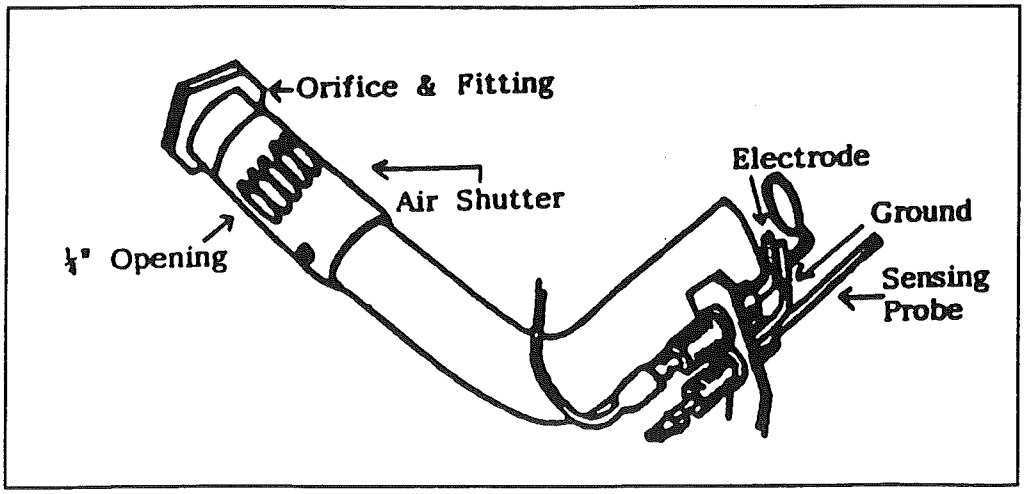
1. Thoroughly drain the inner tank. Simply open the petcock drain valve contained at the front base of the unit. To assist in draining, plus to eliminate the chance of developing an air lock, also open your relief valve.
2. Once the unit has been thoroughly drained, approximately two quarts of water will remain in the base of the tank due to the position of the petcock drain valve. Strictly for winterization precautions, these remaining two quarts of water will not harm the unit. As this water freezes, it has ample room for expansion without causing freezing damage.

Adjustment for Direct Ignition Water Heater

The following are adjustments that can be made to all direct ignition water heaters. These adjustments will improve initial start up and recycling capabilities of the unit.

Air Shutter Positioning

The air shutter should be positioned in a manner that will allow the main burner flame to be blue with a trace or flash of yellow appearing through the flame. Approximate positioning is 1/4 way open. **Note Illus.** The importance of this adjustment is to allow an adequate air/gas mix to be ignited by the electrode at the end of the burner tube. If the air shutter is not positioned properly, this will minimize the units start up and recycling capabilities.



Main Burner Alignment

It is important that the air shutter is fitted over the orifice holder. It is also important that the orifice is centered in the main burner tube. This adjustment allows for the proper air/gas mix.

Electrode Positioning

The electrode and the ground probe should be positioned in the area between the end of the burner tube and the flame spreader. This adjustment allows for instantaneous start up and recycling. The flame sensing probe should not be grounded on the flame spreader or any other metal object in the combustion chamber. The sensing probe is the component part of the electrode that relays to the circuit board that a flame is present and everything is functioning properly. The flame sensing probe sends microamps to the circuit board. When the circuit board receives the proper amount of microamps, it allows the gas valve to stay open and the main burner flame to stay on. The male connector on the back of the flame sensing probe should be clean and free of corrosion, as should the female connector on the white wire. If the water heater initially starts up and runs for one minute or less, the probe could be at fault. First clean it. If this does not correct the problem, replace the electrode assembly. It is important to note that the air adjustment shutter positioning plays an important part in the functioning of the flame sensing probe. When the main burner flame is blue and not roaring, the flame spreads correctly and the sensing probe is heated quicker.

TROUBLE SHOOTING

General Test

If you are not sure if the water heater is functioning properly, there is a simple test you can perform. With the water heater off, run all the hot water out of the system by opening any of the faucets. Now light the water heater and time it until the burner shuts off. A good working heater will shut off within just a few minutes short of a half hour, as timed from a completely cold start up.

Temperature/Pressure Relief Valve

Problem: Weeping or dripping of relief valve while water heater is running DOES NOT mean it is defective. This is caused by the normal expansion of water as it is heated in the closed water system of a recreational vehicle.

The Atwood water heater tank is designed internally with an air gap at the top of the tank to reduce the possibility of this occurring. In time the expanding water will absorb this air. To replace the air:

Remedy:

A. Turn off water heater.

B. Turn off incoming water supply.

C. Open a faucet in the coach.

D. Pull handle of P & T valve straight out and allow water to flow until it stops.

E. Allow P & T valve to snap shut. Close faucet and turn on water supply.

Electronic Ignition System

Problem: Switch on red light does not flash.

Remedy:

A. Water in tank at 160 degrees. Drain off water below 160 degrees, then observe unit for start up.

B. Unit must be connected directly to battery. Battery must produce at least l0V DC. If lower, charge battery.

C. Remove cover from back of water heater and manually depress red reset button.

D. Check wiring of switch with diagram.

E. Defective interior switch. Replace.

F. Defective ECO switch. Check for closed contacts with continuity tester. Replace.

G. Defective thermostat. Contacts should be closed when thermostat is cooled. Replace.

Problem: Switch on red light remains on (not a flash).

Remedy:

A. Inadequate voltage. Check battery.

B. Improper wiring. Check with diagram.

C. Circuit board ground wire or ground at back of unit broken or disconnected.

D. Flame sensing probe grounding to flame spreader or burner. Check by removing lead from probe. If unit goes through lock-out cycle, bend sensing probe away from flame spreader and replace lead.

E. Top of SCR contacting sheet metal casing with power off. Bend SCR top until contact with sheet metal is broken.

Problem: Switch on red light flashes then stays on.

Remedy:

A. No gas supply. Check all valves to open. Unit must have minimum of 11" water column pressure.

B. Check connection to solenoid valve with volt meter. Should have l2V DC.

C. Defective solenoid valve. Test with good battery. One lead on case: one lead on white wire. An audible click should be heard.

D. Water temperature may be 160 degrees, causing contacts to fluctuate.

E. Defective circuit board. Replace.

Problem: Switch on red light flashes one time, then goes out. Unit not lit.

Remedy:

A. Spark probe grounded. Proper gap 1/8" from center wire, burner tube and/or flame spreader.

B. Broken or shorted spark probe lead wire (heavy insulated, light brown.)

C. Temperature of water at 160 degrees allowing thermostat contacts to fluctuate.

D. Possible defective circuit board. Replace.

Problem: Yellow main burner flame.

Remedy:

A. Improper air adjustment.

B. Partially plugged main burner orifice. Remove and clean. DO NOT ENLARGE.

C. Obstruction in main burner tube. Spiders, rust etc. Remove and clean.

D. Bent or missing flame spreader. Straighten or replace.

E. Inadequate gas pressure into valve. Check with manometer 11" water column minimum.

F. Inadequate gas pressure at outlet side of valve. Remove pressure tap plug located at right front of solenoid valve. Insert 1/8" MPT pipe nipple. Hook up manometer. Turn on unit.

G. Grille in upper left hand side of grille obstructed. Filters, tape, etc. should not be used to block any portion of this grille.

H. Gas solenoid bracket bent. Orifice not pointed up center of main burner.

Problem: Tank leaks water.

Remedy:

A. Check all plumbing fittings for leaks.

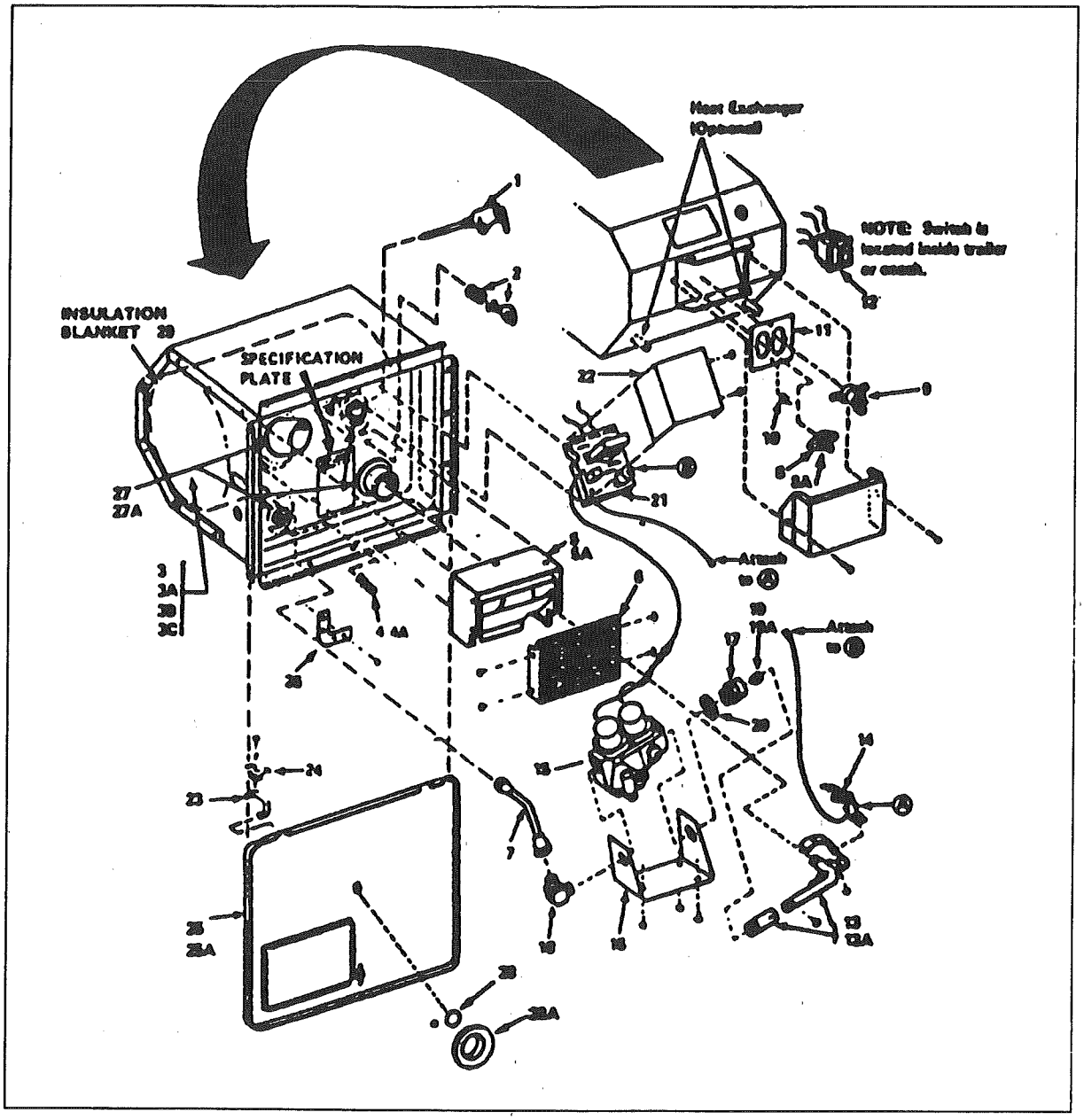
B. Tank Corrosion. Refer to warranty with unit.

Problem: Spark ignitor continues to spark while burner is on.

Remedy:

A. Flame sensor not correctly positioned in flame.

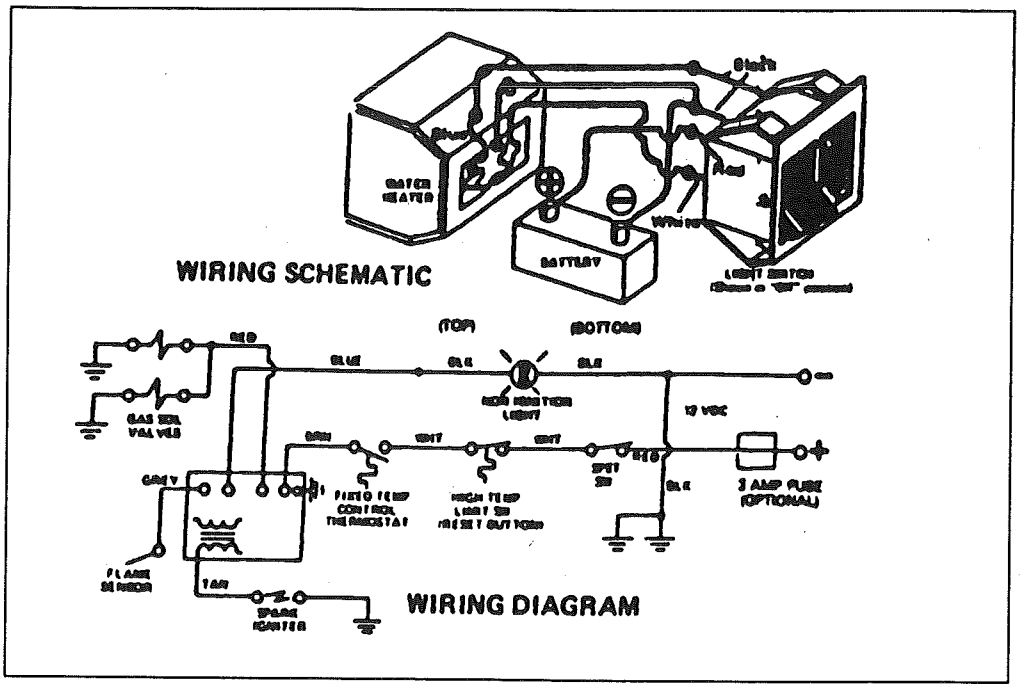
PARTS DESCRIPTION WATER HEATER MODEL G6A-4E



PARTS DESCRIPTION

1. Relief valve 1/2" fitting
2. Cam-loc fastener
3. Inner tank
4. Drain plug
5. Flue box
6. Exhaust grille
7. Gas inlet tube
8. Thermostat 12V LC, 140° preset
9. ECO switch
10. Lock-nut
11. Control retainer plate
12. Switch package
13. Main burner
14. Spark probe assembly
15. Gas valve
16. Valve bracket
17. Orifice holder
18. Elbow fitting
19. Main burner orifice
20. Washer gasket
21. Circuit board
22. Circuit board cover
23. Hinge pin
24. Hinge clip
25. Access cover
26. Corner brackets (set of 4)
27. Gasket kit (standard or high performance)
28. Gasket for sight window
28A. Access cover, sight window
29. Insulation blanket

WIRING SCHEMATIC/DIAGRAM



REMOVAL

In order to remove the water heater, access must be gained to the water lines on the back of the heater. The carpeted panel next to the panel is only held in with about three screws - two in the top and one in the bottom corner. They can be difficult to see buried in the nap of the carpet, but if you feel with your finger tips you won't have any problem finding them. Once you have access to the lines the removal is basic:

1. Turn off LP gas at the bottles.

2. Disconnect city water or turn off water pump.

3. Remove drain plug in the face of the heater and open a faucet so water will drain.

4. Mark and disconnect wires if it has electronic ignition.

5. Remove perimeter screws around the face of the heater.

6. Use a putty knife or similar tool to break the seal between the water heater and the side of the trailer. Be careful not to damage paint.

7. After heater has drained remove water lines next to toilet.

8. Remove gas line.

9. Work the heater side to side as you are pulling out.

WARNING: **Be sure to check the gas line connection with soapy water when replacing.**

HIGH VOLUME ROOF VENT (OPTIONAL)

Manufacturer:

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

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

OPERATING INSTRUCTIONS:

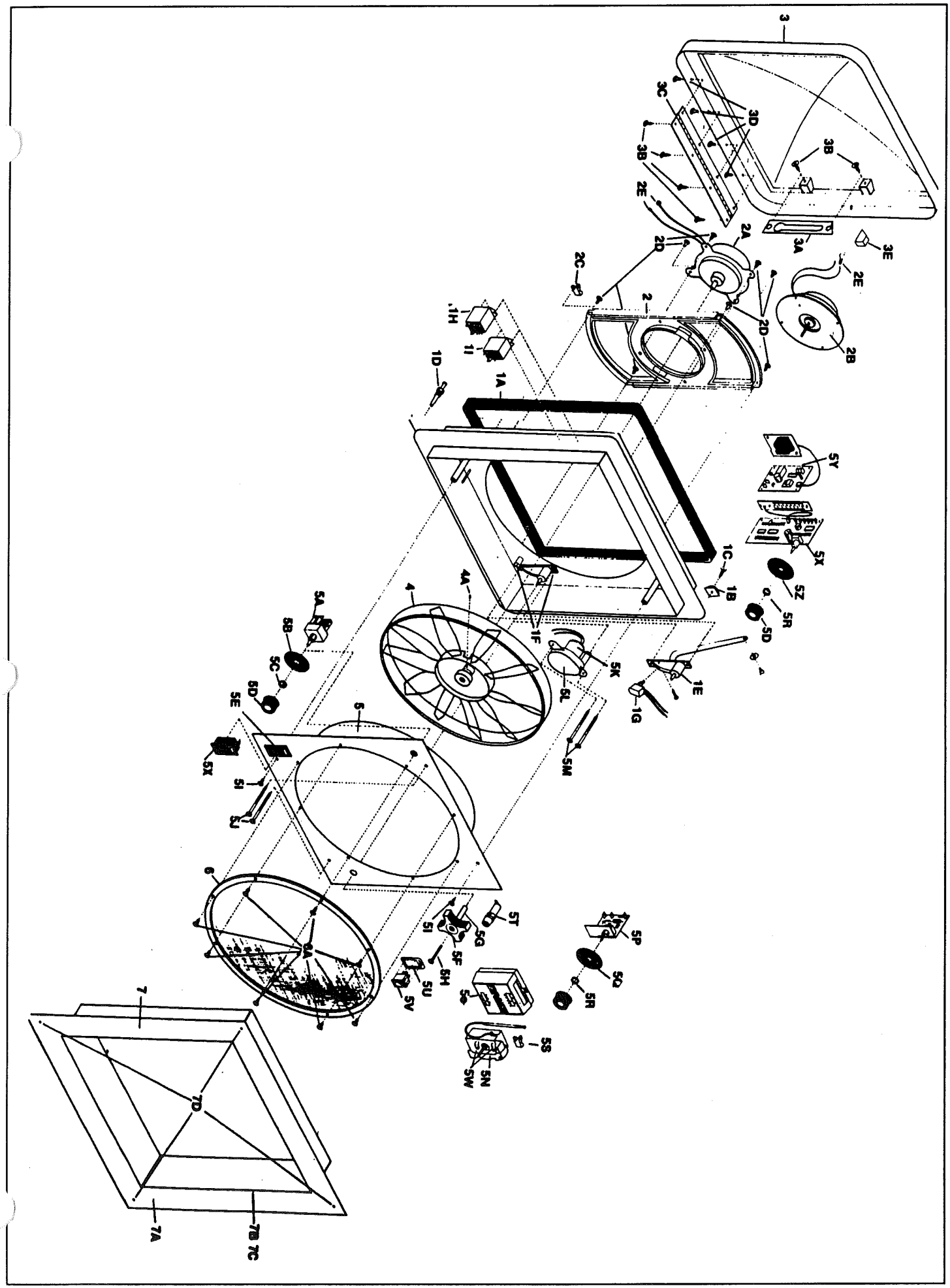
1. Rotate 3 speed switch to desired position, 0-off, 1, 2, and 3. The 3 speed switch must be set at 1, 2 or 3 to activate appliance.
2. Rotate thermostat knob toward 40° (cooler) until dome begins operating.
3. When equipped with reverse switch, there is a neutral (off) position. Fan motor will not operate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

   The thermostat sensor is calibrated approximately 4°. The minimizes rapid recycling of the unit, once desired temperature level is achieved.
5. The rain sensor built into your fan will prevent excessive rain from entering coach through open dome. Maintain a setting above (to the right of) "rain override" zone and dome will close when sensor becomes wet.

   WARNING: Do not leave coach unattended with thermostat knob set in the "rain override" zone.
6. A rain sensor override is built into this system so you can operate your fan during light to moderate rains. When sensor is wet, rotate fan thermostat knob to coolest position to override sensor. Dome will open and fan motor will start. When sensor has completely dried, rotate thermostat knob back to desired setting for automatic operation.
7. To close dome in extremely hot conditions, rotate thermostat knob right, past 110° symbol to off. Dome will come down.
8. Always allow dome to completely cycle up and down. If dome "hangs up" in partially open/close position, rotate thermostat knob to extreme right and then left position allowing complete cycles down and up. Now reset to original comfort level.
9. When vehicle is in storage, rotate thermostat knob to right (off), after dome closes, turn 3 speed switch to "O" (off).

CLEANING INSTRUCTIONS:

1) Turn fan motor OFF.
2) Remove 8 painted flathead phillips screws around perimeter of screen insert only.
3) Clean screen with soap & water solution and reinstall.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	#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
	#11	#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	#101 9-81	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

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

DIMENSIONS	**30 Ft.**	**34 Ft.**	**36 Ft.**
Exterior Height with Air Conditioner	11' 2"	11' 2"	11' 2"
Interior Head Room	78 1/2"	78 1/2"	78 1/2"
Interior Width	95"	95"	95"
Exterior Length	30' 2"	33' 9"	35' 9"
CAPACITIES			
LPG Tank	90 Lbs.	105 Lbs.	105 Lbs.
Fresh Water Tank	60 Gal.	65 Gal.	80 Gal.
Grey Water Holding Tank	70 Gal.	70 Gal.	70 Gal.
Black Water Holding Tank	70 Gal.	70 Gal.	70 Gal.
Fuel Tank	75 Gal.	75 Gal.	75 Gal.
CHASSIS COMPONENTS			
Wheel Base	190"	190"	208"
Engine	460 Cu. In.	460 Cu. In.	460 Cu. In.
Gross Vehicle Weight Rating (Maximum Carrying Capacity)	17,000	20,000	20,000
Gross Combination Weight Rating (Maximum weight of motorhome and towed unit)	25,000	25,000	25,000
Trailer hitch	4,000 lb. tow - 400 lb. tongue weight - all		
Tire Pressure, Front	80 psi	80 psi	80 psi
Tire Pressure, Tag	----	80 psi	80 psi
Tire Pressure, Rear	80 psi	80 psi	80 psi
Tire Size	235/85 X 16 - all		

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