1992
MOTORHOME LY
OWNER'S MANUAL

AIRSTREAM

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*1000 Mile Check or 60 Day Check-Out

AUTHORIZATION CARD

This card entitles you, under the exclusive Airstream Certified Performance Checkout Program, to a 1000 mile (or 60 day....whichever comes first) Performance Check of your Airstream Land Yacht Motorhome.

*After delivery of your motorhome.

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INTRODUCTION

The Owners Manual for your new Airstream Land Yacht Motorhome is designed to explain 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 chassis, 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 Land Yacht Motorhome from an authorized Airstream dealer, Airstream, Inc. warrants the motorhome from defects in material and workmanship as follows:

Warranty Period

2,000 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:

* General Motors Chassis
* Battery
* Fuses and Light Bulbs
* Video Recorder
* 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. An additional checkup, including adjustments, is given at the 1,000 mile or 60 day inspection. 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

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, speed control, windshield wiper blade, motor, washer, LP gas bottle and gas regulator.

Adjustments to your Airstream motorhome were made at the factory prior to delivery to the purchaser. An additional checkup, including adjustments, is made at the 1,000 mile or 60 day inspection. Any adjustments thereafter are the customer's responsibility and are not covered by the Airstream Limited Warranty.

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. Each motorhome is aligned 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.

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 mot 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.

Silver Key Delivery does not stop here. After you have traveled with your motorhome for 1000 miles or 60 days (whichever comes first) you can make an appointment with any one of the Airstream dealers for still another checkout of your motorhome. At that time a specified list of performance checks on your motorhome equipment will be conducted and any deficiencies you have experienced since taking delivery will be corrected.

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

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 Chevrolet and appliance manufacturer's literature for further information.

EVERY 1000 MILES OR 30 DAYS

Escape Window	Check operation of latches and upper hinge
Smoke Alarm	Test and replace battery as required
Tires	Check tire pressure (70 psi front - 60 psi rear) With tag axle - 70 psi front Without tag axle - 65 psi rear
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
Tag Axle	Add lithium bearing grease to tag axle
Wheel Lug Bolts	Torque to 90-95 ft. lbs.
Range Exhaust Hood	Clean fan blades and wash filter
Roof Vent Elevator Screws	Lubricate with light household oil
Main Door Step	Lubricate moving parts and check
* Rear Suspension Air Tank	Drain moisture at valve on bottom of tank

* In high humidity the air tank should be drained at 1200 mile intervals.

EVERY 10,000 MILES OR 6 MONTHS

Electric Brakes (tag axle)	Check magnets and shoes
Exterior	Clean and wax
Fuel System	Replace in-line filter at fuel tank

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.
Tag Axle Wheel Bearing	Clean, Repack

MAINTENANCE RECORDS

Date	Dealer	Service Performed

DRIVING

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. The list is to help you and may not be all inclusive.

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. As an added precaution we recommend the dead bolt also be locked on the main door.

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. Be sure all LPG controls on furnace, range/oven and gas/electric refrigerator are turned off.

9. Check that any internal stowage is securely held in place.

10. Check that lights and switches are set in positions safe for travel.
11. 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.

12. Check that front passenger's seat is locked in position - both fore and and aft adjustment and swivel mechanism.

13. Check rear view mirror adjustment, inside and outside. Adjust curtains if necessary for maximum visibility.

14. Fasten lap belts.

15. Check that step light goes out and chat 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.

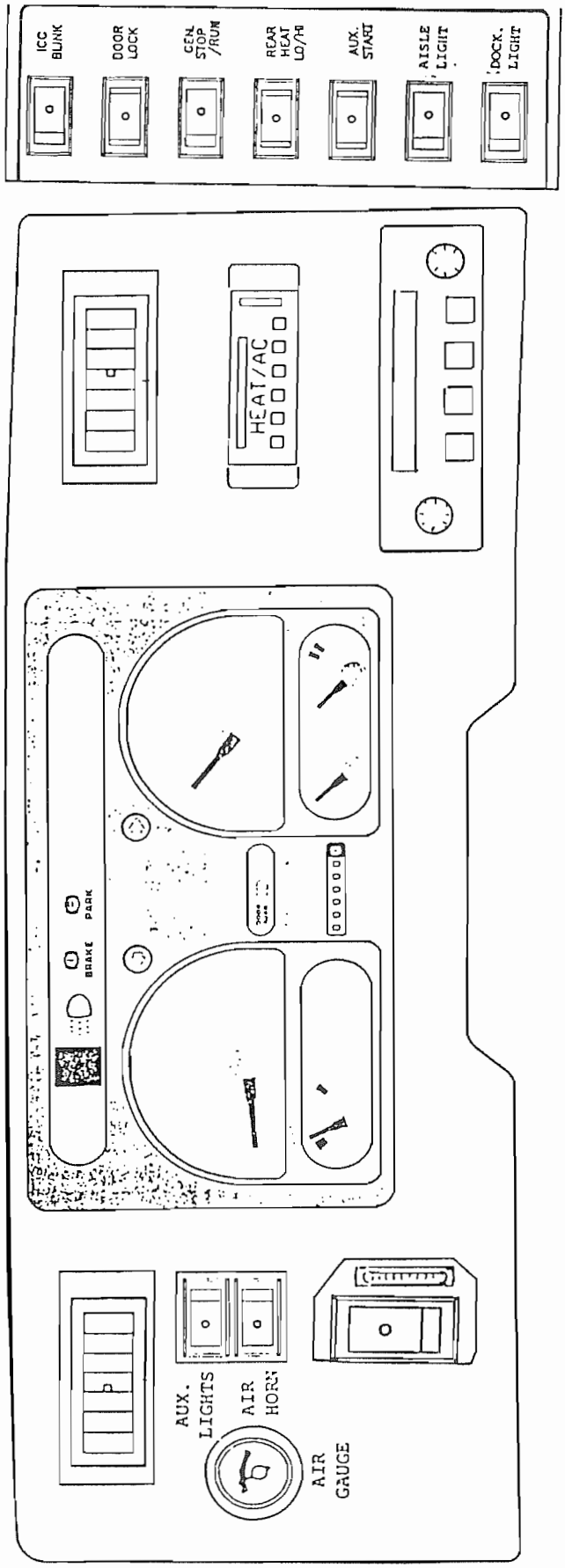
WARNING: Children must be secured in a Federally Approved Child Restraint Device. Failure to use proper restraints can result in severe or fatal injuries in case of accidents.

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



The automotive gauges and controls are standard chevrolet instruments. Their function and use is described in your Chevrolet Drivers Manual.

The Airstream controls are the two switches on the left side of the dash and the seven switches in a vertical row along the right side.

On the left:

- **Auxiliary driving lights** - in order to operate the driving lights the ignition switch and headlight switch must both be in the on position.
- **Air horn** - If the air horn switch is off only the electric automotive horn will be operational. With the air horn on the electric and air horns will operate together when the horn button in the steering wheel is depressed. If an air leak should develop in the overhead air line system shutting off the air horn switch close those lines off from the rest of the system.
- **Air pressure gauge** - This gauge is only used on models with air bag suspension on the rear drive axle. The gauge monitors the pressure in the air bags. The system should be checked if the needle remains in the red on either end of the scale for more than a couple of minutes.

Right side switches:

- **ICC Blink** - With this switch it is possible to blink the clearance lights on the motorhome. It's most commonly used as a way of indicating your thanks for a courtesy shown to you by another driver.
- **Door Lock** - The main door can be locked or locked from the drivers seat. Remember to hide an extra door key on the exterior in case of unexpected battery failure.
- **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 Auxiliary Heater** - This two speed heater works from hot water provided by the engine radiator. Once the engine has reached operating temperature this heater will help heat the coach.
- **Auxiliary Start Switch** - The auxiliary start switch is intended to be used if the engine battery becomes to 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.
- **Aisle Lights** - The low aisle lights will allow passengers to converse with out using overhead lights that could be bothersome to a driver at night.
- **Docking Light** - This switch powers exterior lights on the curbside exterior of the coach and the curbside front cornering lamp (the roadside cornering lamp is not in this circuit).

  The rear auxiliary back-up lights used with the rear monitor camera are also powered by this switch.

FLOOD LIGHT

(Optional, not shown) Two switches control the operation of the search lights. The left hand switch controls the directional movement of the lights. Move it up or down, right or left, and the light will move in the same direction. The right hand switch illuminates the light in either spot light or flood light mode.

CAB SEATS

The cab seats will adjust three ways for maximum comfort. Three levers control the operation. Moving the upper lever on the right side rearward allows the seat to recline. The lower lever on the right side, when moved forward, allows the seat to swivel. Pushing the lever on the left side to the left allows the seat to slide forward or backward.

POWER SEAT CONTROLS

Power seat controls have three switches. The center switch moves the seat up and down, forward and back. The other two switches control the tilt of the seat. If the seat is run to the end of its movement in any direction a stall condition will exist and a 12 volt automatic circuit breaker will "kick-out" to avoid damage to the motors. If this occurs wait approximately 30 seconds and operate the switch in the opposite direction.

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 2,000 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 200 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 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:

Considerable damage will occur if the motorhome is improperly lifted for towing purposes. Only qualified professional wrecker service companies with proper equipment should be used.

The most common equipment is called "reach underhooks". These allow the tow operator to lift on the front suspension of your motorhome without damaging the bumper or other body parts. Another choice is a wheeled dolly. In these the front tires sit in a cradle supported by its own wheels. The tow operator should be told the weight of your vehicle is close to 5,000 lbs on the front suspension so they can be properly prepared when they reach you.

On vehicles with hydraulically operated park position, it may be necessary to remove a drive shaft before towing. Further information is available in your Chevrolet Owners Manual.

NOTES

CHASSIS

The Airstream motorhome is built on a Chevrolet chassis. Operation of the Chevrolet engine and other related components is discussed in the Chevrolet 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 Chevrolet, and which are Airstream's responsibility. The following list shows the major components of the chassis and the company responsible for their servicing.

Chevrolet (P-30 Forward Control, Motorhome Chassis)

Engine
Transmission
Brakes (Except Tag Axle)
Steering Assembly
Front Spindle, Bearings
Steel Wheels
Alternator
Cruise Control
Turn Signals
Front Suspension, Air Bags (Except Shocks)
Drive Axle and Hubs
Rear Shocks
Automotive Fuse Panel
Parking Brake
Electric Fuel Pump

Airstream

Tag Axle, Complete
Rear Air Bag Suspension
Front Shock Absorbers
Auxiliary Heater
Dash Air Conditioner/Heater
Windshield Wipers
Leveling Jacks
Fuel Tank and Fill
Aluminum Wheels
Air Horn
Isolator
Automotive Accessory Fuse Block

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.

FRONT SUSPENSION

The front suspension is all Chevrolet. Airstream sets the air bag pressure at 70 psi when aligning the front end.

REAR SUSPENSION

The rear suspension on the 33 and 36 ft. models is air suspension on the dual wheel axle, and a Dura-Torque® rubber torsion tag axle.

Two automatic leveling valves on the tag axle sense the weight changes on the rear suspension and increases or decreases air pressure in the air bags on the dual wheel axle. This prevents the load from being absorbed by the tag axle and robbing the drive wheels of traction.

AIR COMPRESSOR

The air compressor for the air bags on 33 foot units is located under the center of the coach just forward of the step. The 36 foot models have the compressor mounted in the LP tank compartment forward of the step. Air storage tanks are located between the axles. This tank has a tire type valve that can be used to fill the tank in case of emergency. The high amperage power is picked up from a circuit breaker located on the back of the battery box. Power to operate the solenoid when the ignition is on comes from the Airstream automotive fuse panel. The compressor is only supplied with power when the ignition key is "ON" or in the accessory position. As with any compressed air system, water is formed. At engine oil change intervals the air valve extending out from underneath the curbside rear storage compartment should be opened until all liquid has been expelled. In high humidity areas, and during winter months, the tank should be drained on a more frequent basis.

LOW AIR PRESSURE

If the air pressure gauge on the dash indicates a pressure lower than 25 psi the system should be checked. First check the air pressure in the tank. The tank is located behind the drive axle and has a tire type valve on the bottom. Check tank pressure and add air pressure in emergency situations. The normal pressure would be in the 75-100 psi range at the tank.

Also, check the height of the air bags (see illustration). A measurement of less than 9" would indicate a problem. If the height is more than 9 1/2" and the tank pressure is proper, continue on your trip; but, check the air bag height regularly. In an emergency air can be added directly to the reservoir tank. Do not exceed 120 psi.

WARNING:

If you must drive to a service location with the air bags deflated, keep speeds below 50 mph and cross any railroad tracks or similar hazards at the lowest speed possible to prevent damage to the tag axle.

30 FOOT MOTORHOME

The 30 foot motorhomes have "helper" air bags mounted on the rear springs. The intent of these bags is to trim the rear height of the motorhome for appearance and clearance. Tire type air valves are accessible next to the rear wheels on each side.

Minimum air pressure is 20 psi and must be maintained. One hundred (100) psi is maximum. Forty to Fifty pounds pressure often seems to be the best all round pressure for ride and trim height. The bags can also level the unit side to side.

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WARNING:

If you must drive to a service location with the air bags deflated, keep speeds below 50 mph and cross any railroad tracks or similar hazards at the lowest speed possible to prevent damage to the tag axle.

30 FOOT MOTORHOME

The 30 foot motorhomes have "helper" air bags mounted on the rear springs. The intent of these bags is to trim the rear height of the motorhome for appearance and clearance. Tire type air valves are accessible next to the rear wheels on each side.

Minimum air pressure is 20 psi and must be maintained. One hundred (100) psi is maximum. Forty to Fifty pounds pressure often seems to be the best all round pressure for ride and trim height. The bags can also level the unit side to side.

CHASSIS

The Airstream motorhome is built on a Chevrolet chassis. Operation of the Chevrolet engine and other related components is discussed in the Chevrolet 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 Chevrolet, and which are Airstream's responsibility. The following list shows the major components of the chassis and the company responsible for their servicing.

Chevrolet (P-30 Forward Control, Motorhome Chassis)

Engine
Transmission
Brakes (Except Tag Axle)
Steering Assembly
Front Spindle, Bearings
Steel Wheels
Alternator
Cruise Control
Turn Signals
Front Suspension, Air Bags (Except Shocks)
Drive Axle and Hubs
Rear Shocks
Automotive Fuse Panel
Parking Brake
Electric Fuel Pump

Airstream

Tag Axle, Complete
Rear Air Bag Suspension
Front Shock Absorbers
Auxiliary Heater
Dash Air Conditioner/Heater
Windshield Wipers
Leveling Jacks
Fuel Tank and Fill
Aluminum Wheels
Air Horn
Isolator
Automotive Accessory Fuse Block

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

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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 on the left frame rail behind the head light. 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.

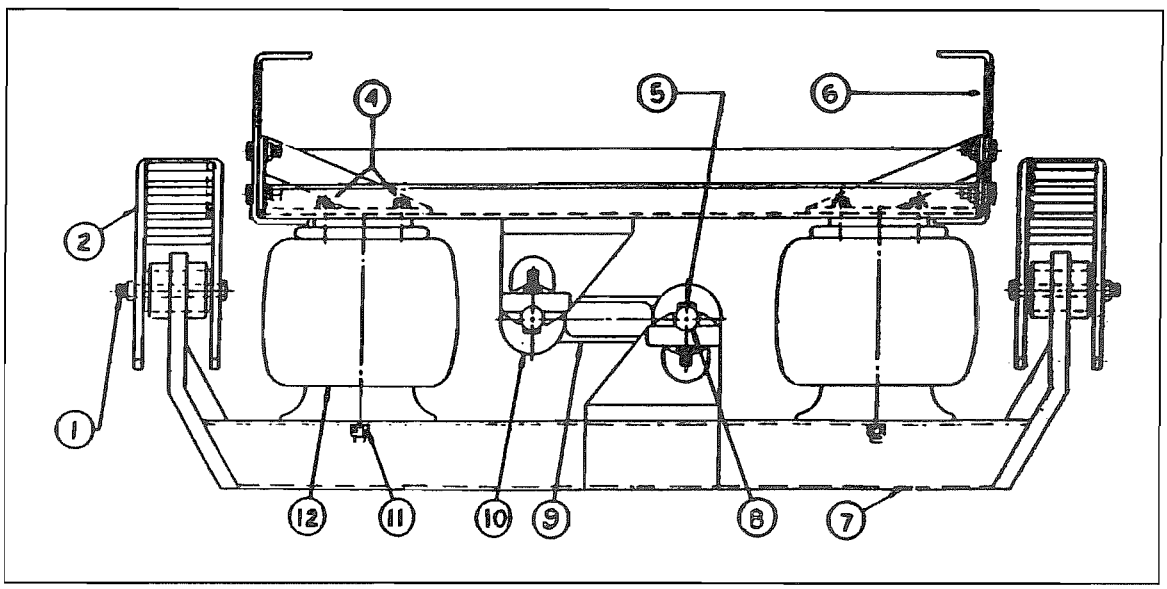
Lubrication

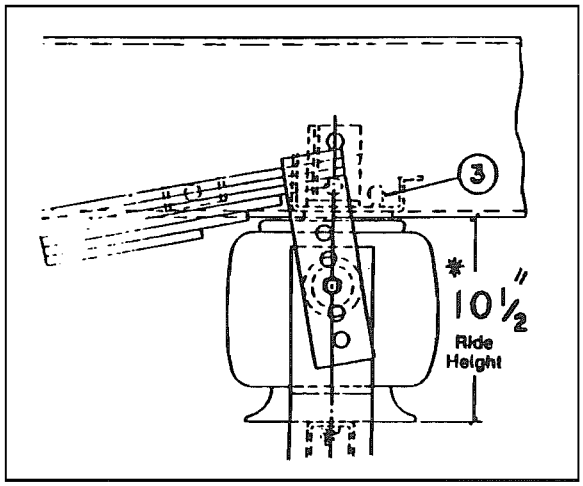
For your convenience all motorhomes with tag axles are supplied with a small grease gun and two cartridges of Lithium base grease.

Tag axles have a special Sure-Lube system to ease wheel bearing maintenance. At each oil change the center of the hub cover on the tag axle should be "popped out" to expose the grease zerk. Lithium base wheel bearing grease is then injected until grease flows from the small vent hole in the axle tube.

CAUTION: The Sure-Lube system is an added feature, but is not intended to replace normal wheel bearing maintenance. Complete wheel bearing cleaning, inspecting and repacking should still be done every year or 12,000 miles.

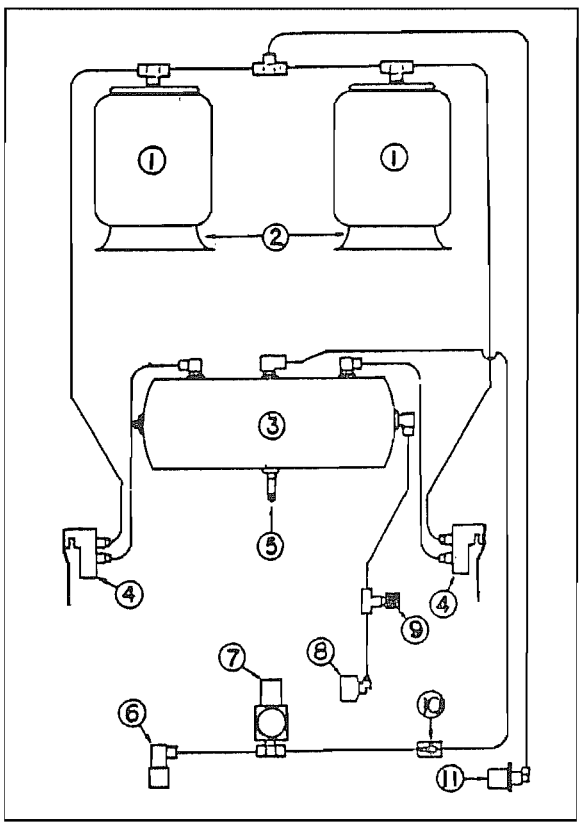
AIR BAG SUSPENSION ASSEMBLY 33 & 36 FOOT - CHEVROLET CHASSIS





1. Rear Shackle Bolt
2. Stirrup
3. Air Fitting
4. Bolt, Bag Mounting, Upper
5. Bolt, ½ x 2½ NF (GR. 8)
6. Chassis Frame
7. Support Beam, Air Bag
8. Straddle Pin
9. Traverse Rod
10. Traverse Rod Bushing
11. Stud, Bag Mounting, Lower
12. Air Bag

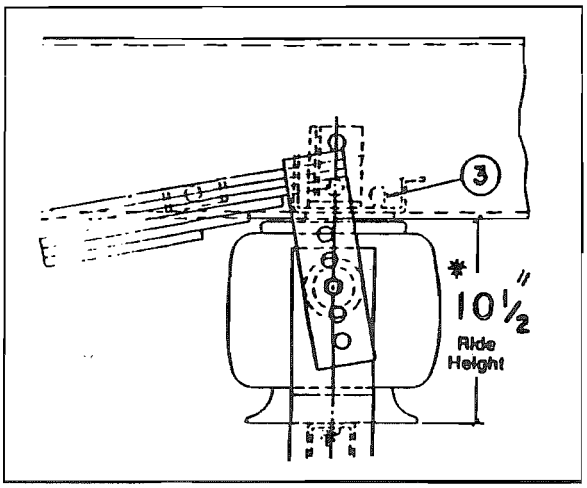
The 10 1/2" ride height figure shown in the illustration is optimum. The actual measurement could be 9 1/2" to 10 3/4". A good rule of thumb is to not try to alter the height unless you have good reason to believe there is a problem. Each motorhome is weighed and the leveling valves adjusted and rechecked at the factory. The criteria is 3,000 lbs. total weight on the tag axle. Since the setting is made by actual weight instead of height, the height will vary to some degree. The bags are plumbed together. This means if you are parked so the motorhome is leaning, it is natural for the two bags to measure different heights.



AIR LINE SCHEMATIC

1. Air Bag
2. Cone, Air Bag
3. Air Supply Tank
4. Leveling Valve
5. Air Valve, Tire Type
6. Solenoid, Air Relief
7. Compressor
8. Switch, High Pressure
9. Coupler, Air Hose Fitting
10. Check Valve
11. Sender, Air Pressure

The logic of the air system is as follows: The compressor supplies air pressure through a check valve into the air supply tank. The air supply tank provides pressure to the intake side of the leveling valve. When the leveling valve is opened by the body of the coach lowering over the chassis, the air pressure is supplied to both air bags through a "T", raising the coach back to the proper height.



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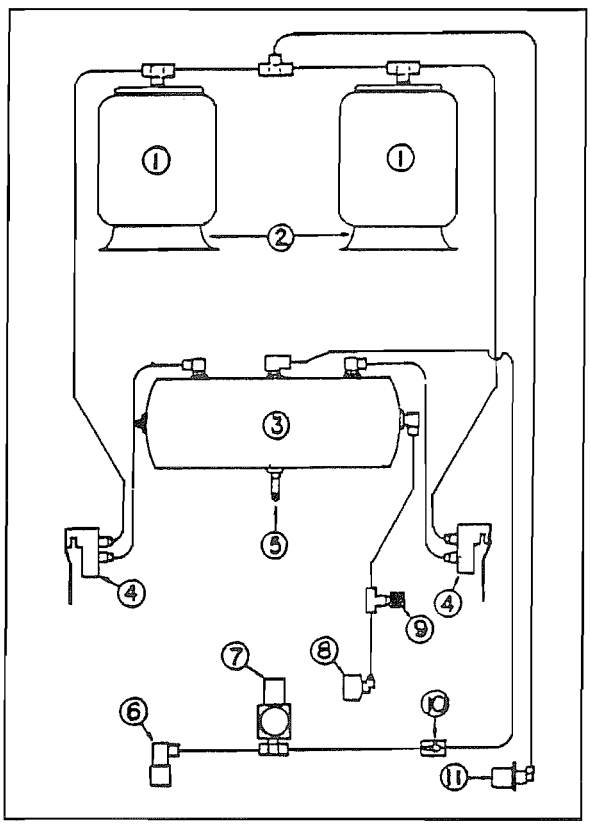

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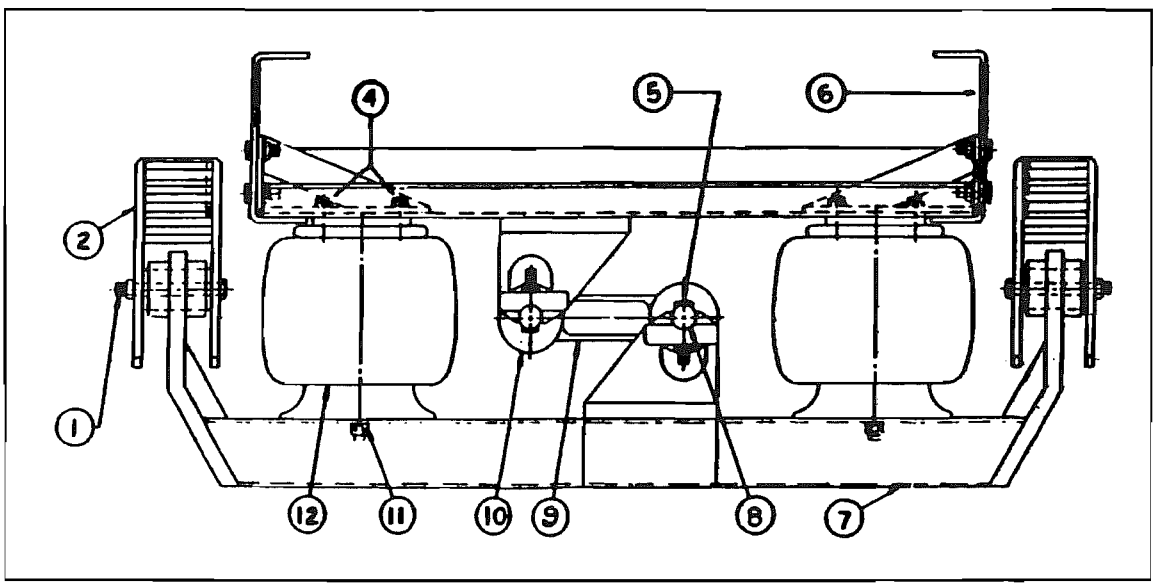


The high pressure switch controls the air pressure in the air supply tank. The switch comes "on" when the pressure drops below 80 psi and shuts "off" when the pressure reaches 100 psi.

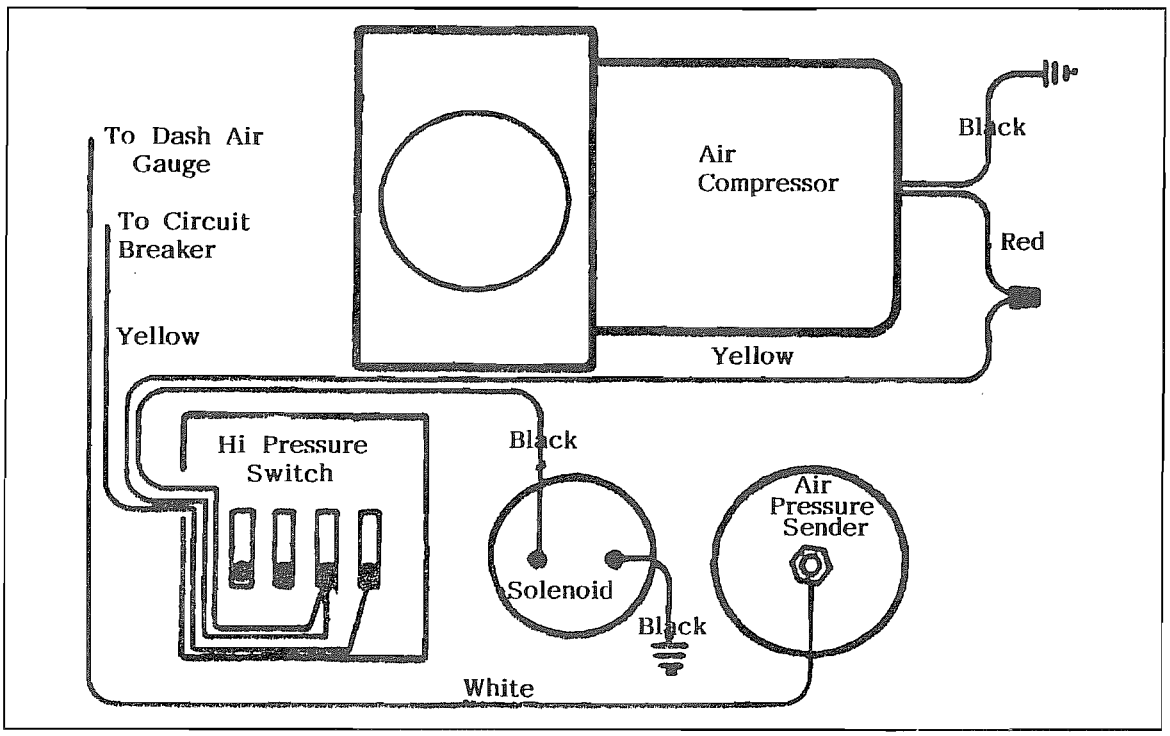
The sender monitors the pressure in the air bags and sends the appropriate signal to the air gauge on the dash.

The solenoid valve next to the compressor is a normally open valve. It is wired with the compressor. When power to the compressor is shut off by the high pressure switch, power is also shut off to the solenoid. Without power the solenoid opens and releases all air pressure from the check valve back through the compressor. When power is supplied to the compressor the solenoid closes. The reason for the solenoid is to allow the compressor to start under a "no load" condition.

As in all compressed air systems water is formed. A drain valve is located under the curbside rear lower storage compartment. Open and drain the system about each oil change or more often in high humidity conditions.

The air compressor, solenoid, high and low pressure switches are all mounted in the curbside lower compartment next to the LP tank.

WIRING SCHEMATIC - AIR SUSPENSION - TAG AXLE



OPERATION

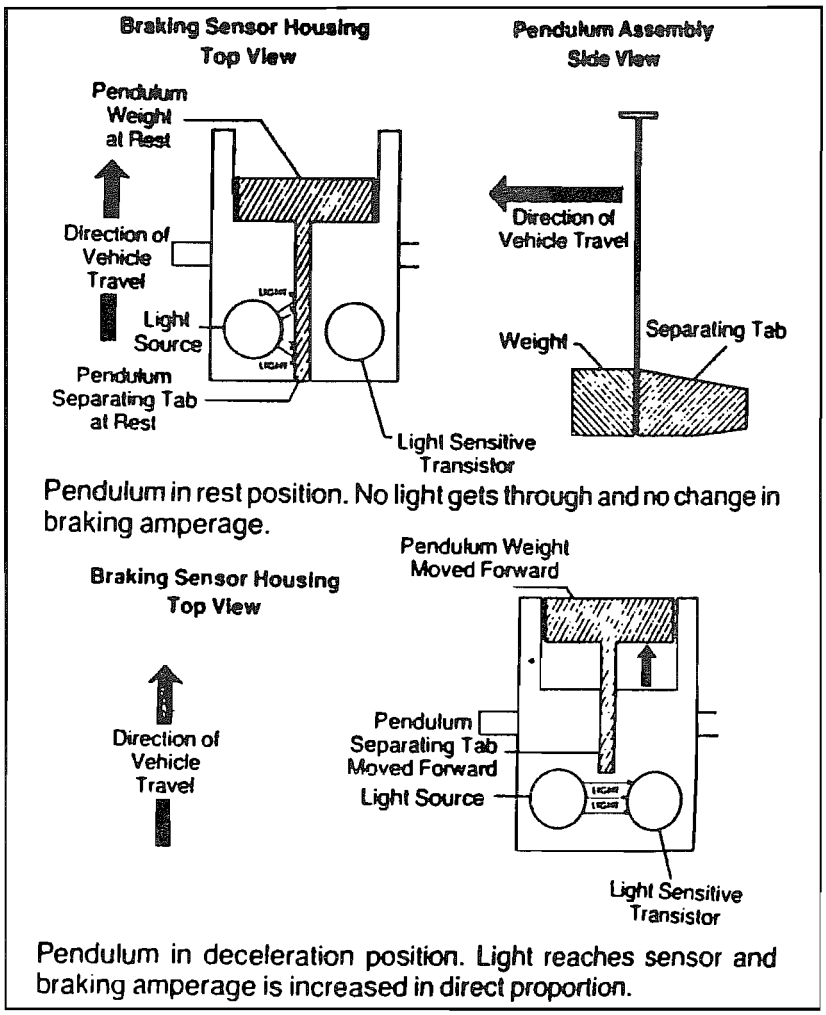
Twelve volt power is supplied from an automotive 12V circuit breaker located on the back of the coach battery box. This is the high amperage power required to operate the compressor. A second wire designed to open and close the solenoid is run forward to the Airstream automotive fuse panel. This wire is only hot when the ignition key is on.

If the pressure in the air supply tank drops below 80 psi the points in the high pressure switch close and power is then supplied to the solenoid (closing it) and to the compressor. When the pressure reaches about 100 psi the points in the switch open cutting power from the compressor

and solenoid. The solenoid assumes its normally open position, which relieves air pressure from the compressor so it won't be starting under load during the next cycle.

The air pressure sender is plumbed to the air bags. It senses the pressure and sends the appropriate signal to the air gauge on the dash. Ground for it is picked up through the mounting clamp.

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.

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 located on the left frame rail behind the head light.

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.

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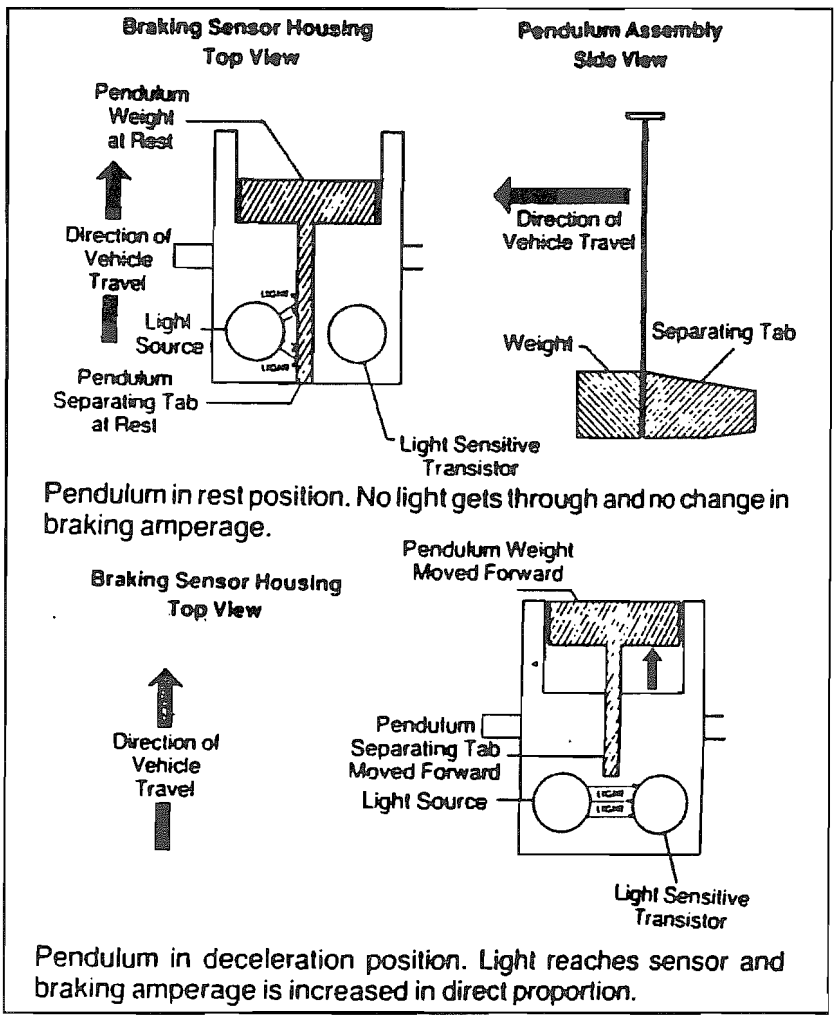

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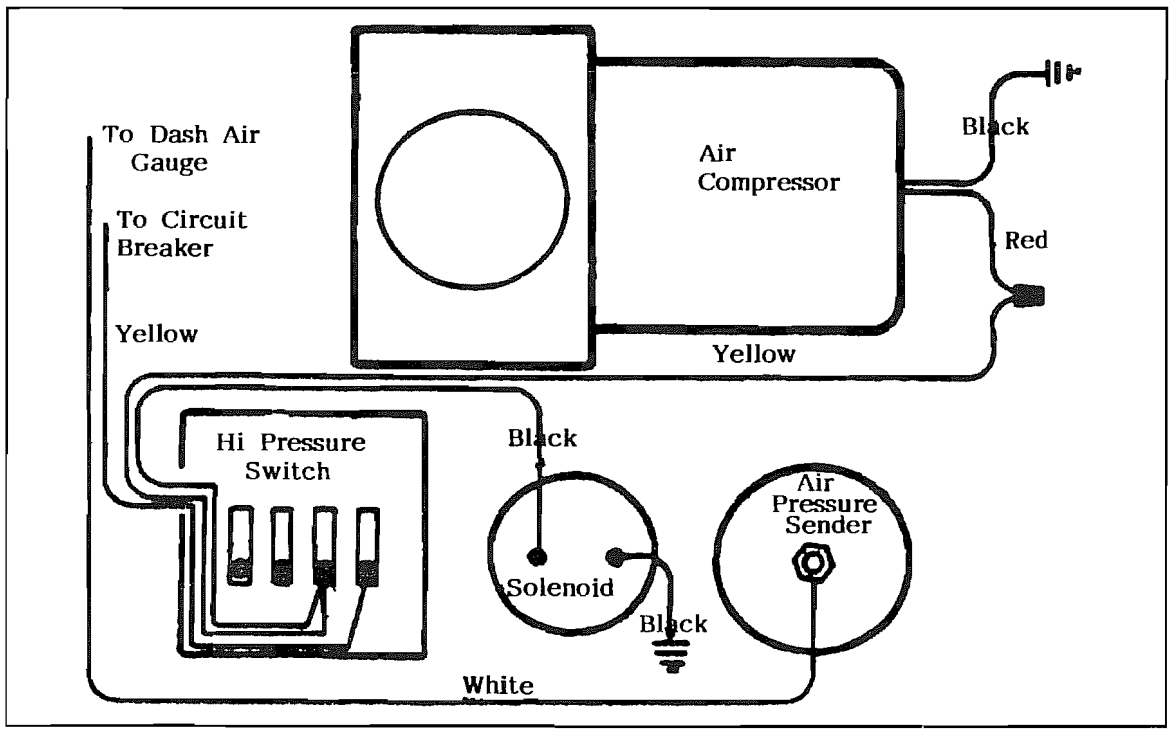

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If the pressure in the air supply tank drops below 80 psi the points in the high pressure switch close and power is then supplied to the solenoid (closing it) and to the compressor. When the pressure reaches about 100 psi the points in the switch open cutting power from the compressor

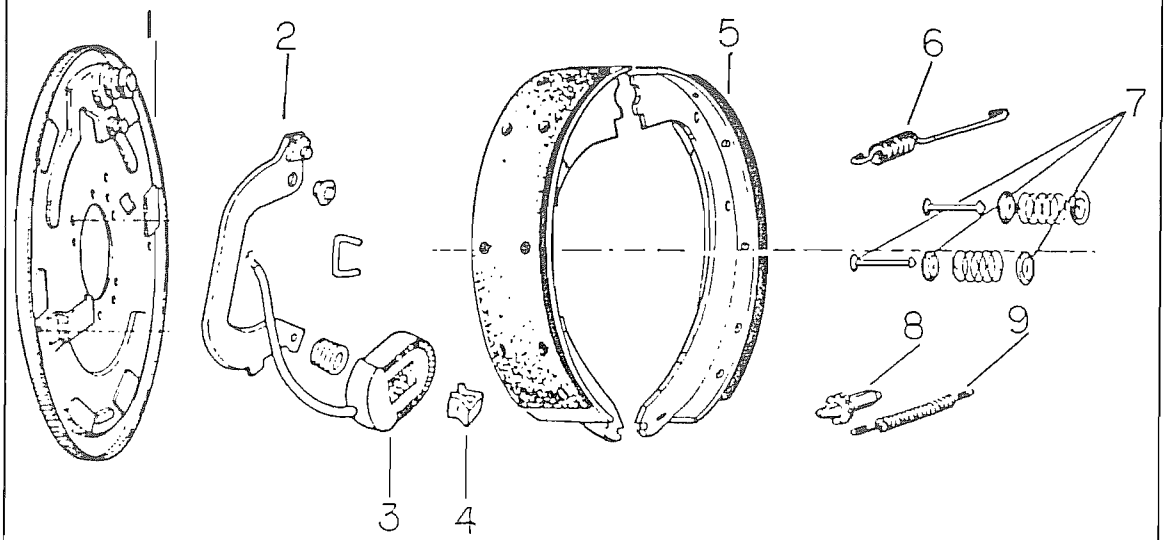
OPERATION

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.

TAG AXLE ELECTRIC BRAKE ASSEMBLY



12" Kelsey-Hayes Brake Assembly

1. Brake mounting plate
2. Lever arm (right hand or left hand)
3. Magnet
4. Retaining clip, magnet
5. Brake shoes, pairs
6. Retractor spring
7. Hold down kit
8. Adjusting screw assembly
9. Adjusting screw spring

CHECKING ELECTRICAL BRAKE SYSTEM

1. **To Check Complete Circuit**

   A. Disconnect wire leads at brake backing plate and connect to volt meter.

   B. Apply brake. Low voltage should be indicated.

   C. Take "controller loose from steering column bracket and point forward end down. Voltage should increase.

   D. Holding forward end of controller downward, bump it against the heel of your other hand. Volt meter should show increase in proportion to the distance the internal pendulum of the controller is swinging.

2. **To Check Magnet**

   A. Using a DC ammeter with a minimum range of 0 - 10 amps, connect as shown in Fig. 1.

   B. Wiggle magnet leads and rap on magnet.

   C. If ammeter shows any current, a short is indicated and magnet should be replaced.

   D. Reconnect magnet as shown in Fig. 2.

   E. Current reading should be 3.0 to 3.5 amps. If not, replace magnet.

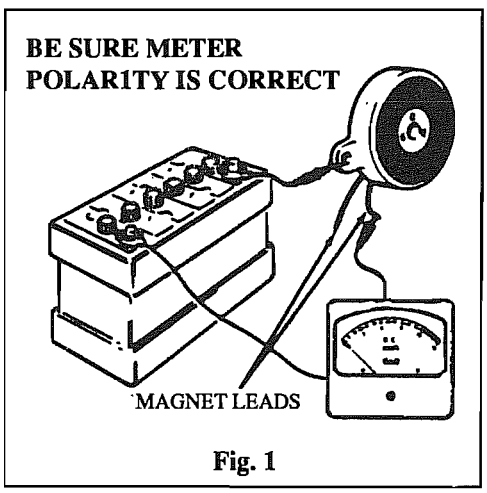


Fig. 1

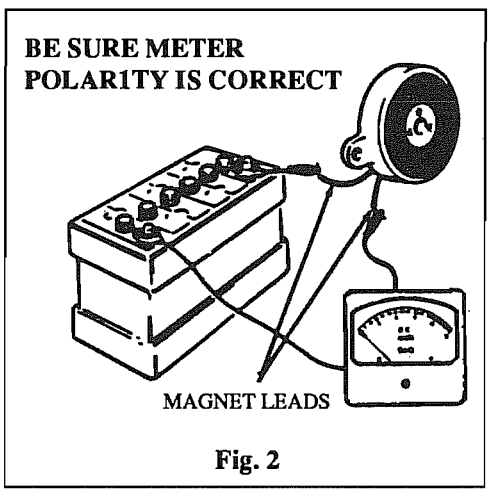


Fig. 2

CHECKING MECHANICAL BRAKE COMPONENTS

1. **To Check Magnet**

   A. Check angle of wear pattern as shown in Fig. 3 with a straight edge.

   B. If the magnet rubbing surface is flat it need not be replaced until the friction element shows signs of wearing through.

   C. A magnet that is not wearing flat must be replaced since it cannot function efficiently. Before replacing with a new magnet determine the cause of the improper wear. First check the magnet lever pivot. A worn pivot bushing can cause

the magnet lever to cock, thus allowing the magnet to trip against the armature plate. If this condition exists, the lever assembly should be replaced. When reinstalling magnets be sure to install the loom (lead wire) properly, avoiding kinks and allowing ample clearance for the lever to move through its full travel. Operate the lever in both directions to be sure the loom moves properly without binding, kinking, or interfering with lever movement.

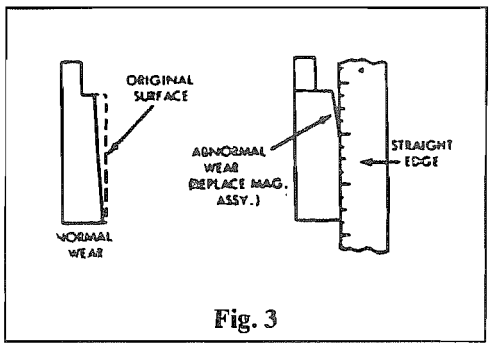


Fig. 3

2. **Wheel Bearing Maintenance**

A. Pull dual drive wheels up on ramp approximately 8" high until tag 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 and washer.

F. Remove outside bearing and brake drum.

G. Lay down drum with inside grease seal down. Knock out inner bearing and grease seal using wood or plastic dowel and hammer.

H. Clean all parts thoroughly with kerosene.

I. Check all bearings for chips or roughness of any kind. Always replace both bearing and race if damage is found on either.

J. If bearing packing equipment is not available place a quantity of grease in the palm of one hand and push the large end of the bearing cone down into the grease.

K. Rotate bearing and continue forcing large end down into grease until grease is extruded up through small end and completely around circumference of bearing. See Illus:

L. Use lithium grease provided with coach or equivalent grease.

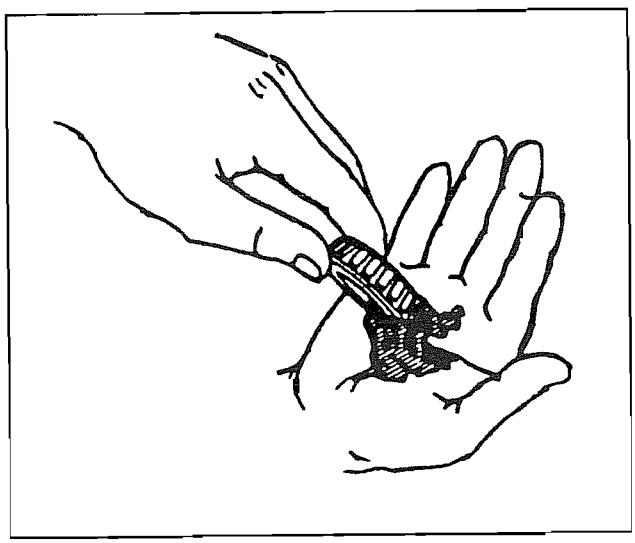
M. Liberally coat outside of inner bearing. Place in drum and install new grease seal with wooden or leather mallet.

N. Carefully place drum on spindle to avoid damaging grease seal.

O. Install packed and coated outer bearing, spindle washer and spindle nut.

P. While rotating the wheel tighten the spindle nut with a 12 inch wrench until there is a slight tension. Then back off one notch and install cotter pin. There should now be from .001" to .010" end play in hub. If not, back off one more notch.

Q. Align index marks and install tire and wheel, torquing lugs to 130-150 ft. lbs. Recheck or advise customer to recheck at 50 miles and again at 200 miles to assure tightness.



3. Armature plate (The surface the magnet contacts when brakes are applied.)
   A. Under normal conditions the armature plate should last indefinitely. However, if an armature plate shows excessive galling due to contamination (mud, small stones, etc.) the complete drum must be replaced.

4. Brake Drum
   A. Inspect the brake drum rubbing surface. This surface should have a dull grey appearance free from heavy scoring and/or excessive wear. One or two light score marks are not cause for reboring the drum. If the drum has heavy scoring, is worn more than .020" oversized, or has more than .015" runout, the drum should be rebored. A standard drum lathe may be used, taking care not to remove more than .060" from the original drum diameter (.030" per side). The drum should be discarded if it must be bored more than .060" over its original diameter to clean up the surface.

5. Brake Lining
   A. Inspect the brake linings for wear. If a lining is worn to the rivets it should be replaced. Inspect for uneven lining wear patterns such as shown in Fig. 4, and replace if this condition exists. Wear patterns such as this may indicate improperly located flanges or a bent backing plate. Also, if lining is badly contaminated with grease, oil, etc., it must be replaced since contamination of this type cannot be sanded or dissolved out.

IMPORTANT: Always replace brake linings in sets. Both brakes on the same axle.

B. If the lining is worn to the rivets without evidence of uneven wear, simply replace with new Kelsey-Hayes factory ground shoe and lining assemblies.

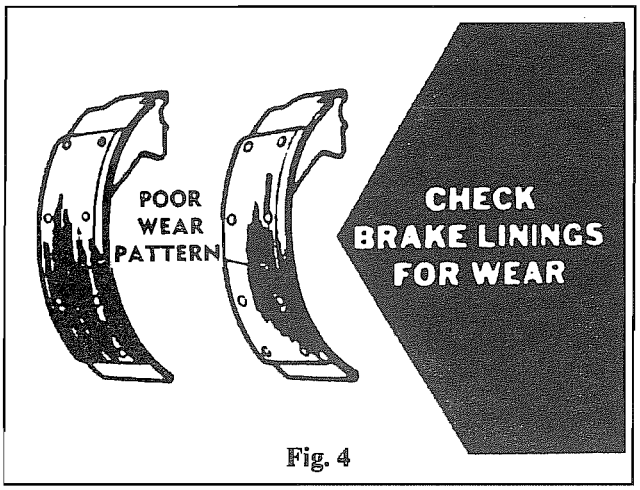


Fig. 4

BRAKE ADJUSTMENT

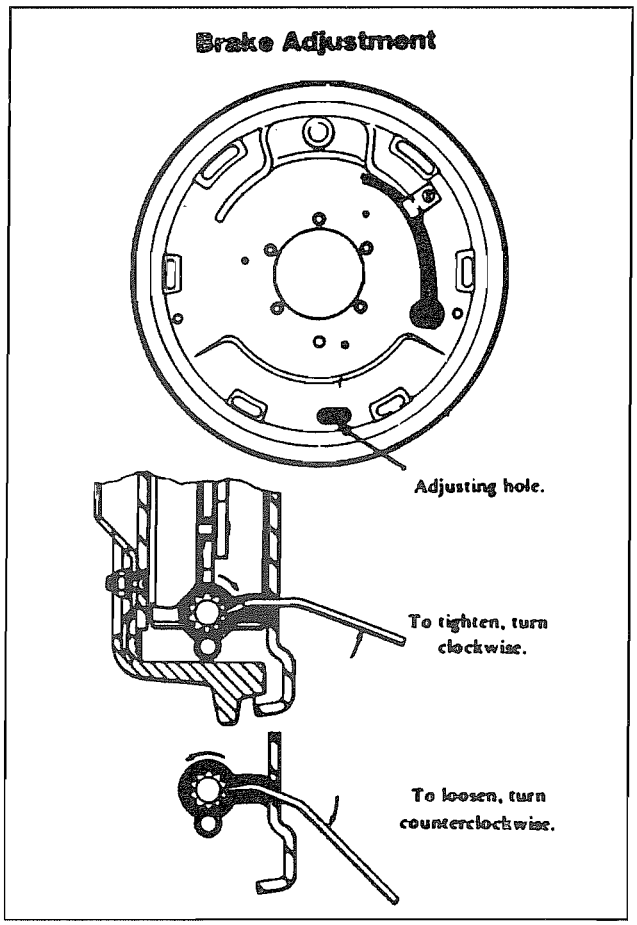
1. Pull dual drive wheels up on ramp approximately 8" high until tag axle tires clear ground.

2. Set hand brake and chock 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.



TROUBLE SHOOTING BRAKES

PROBLEM: Grabby or locking brakes.

CAUSE/ REMEDY: Control voltage too high. Adjust controller to reduce power.

CAUSE/ REMEDY: Improper lining. Check lining. Replace if necessary.

CAUSE/ Grease on lining. Check for contamination. Replace seals and REMEDY: lining.

CAUSE/ REMEDY: Loose parts in brakes. Check for loose rivets, broken springs, etc. jammed in brakes.

CAUSE/ REMEDY: Rust in armature plate and/or brake drums. Caused by non-use. Usually corrected by normal continued use.

CAUSE/ REMEDY: Selective resistor setting incorrect. Readjust to increase resistance.

PROBLEM: Weak Brakes

CAUSE/ REMEDY: Poor connection. Check that all connections are clean and tight.

CAUSE/ REMEDY: Short Circuit, Check electrical circuit.

CAUSE/ REMEDY: Worn or defective magnets. Replace magnets.

CAUSE/ REMEDY: Poor brake adjustment. Adjust brakes.

CAUSE/ REMEDY: Backing plates bent or misaligned. Check backing plate and flanges. Correct if necessary.

CAUSE/ REMEDY: Greasy lining. Check for worn or damaged grease seals. Replace if necessary. Make sure bearings are packed with high grade bearing grease not cup grease or chassis lubricant.

CAUSE/ REMEDY: Using trailer brakes only. Use of trailer brakes only can cause early fade or loss of friction due to excessive heat.

CAUSE/ REMEDY: Control voltage too low. Adjust controller to increase power.

PROBLEM: No Brakes

CAUSE/ REMEDY: Open circuit. Check for broken wires, loose connections, improper grounding.

CAUSE/ Improperly wired or inoperative controller. Check controller

REMEDY: operation.

CAUSE/ REMEDY: Poor brake adjustment. Adjust brakes.

CAUSE/ REMEDY: Worn or defective magnets. Replace magnets.

CAUSE/ REMEDY: Short Circuit. Check electrical circuit.

PROBLEM: Intermittent or surging brakes.

CAUSE/ REMEDY: Out of round drums. Rebore drums if more than .015 out of round.

CAUSE/ REMEDY: Broken magnet lead wires. Bench check magnets. Replace if necessary.

CAUSE/ REMEDY: Loose wheel bearings. Check and adjust bearing.

PROBLEM: Dragging brakes

CAUSE/ REMEDY: Brakes adjusted incorrectly. Check brake adjustment.

CAUSE/ REMEDY: Electrical defect in controller. Insufficient gap between controller contactor strip and boil may cause brakes to be on continuously. Correct condition.

CAUSE/ REMEDY: Badly corroded brake assemblies. Check brake assemblies for severe corrosion. Check to be sure magnet levers operate freely. Clean and lubricate brake assemblies.

CAUSE/ REMEDY: Weak or broken shoe return spring. Check and replace if necessary.

PROBLEM: Noisy Brakes

CAUSE/ REMEDY: Lining worn to rivets. Check and re-line linings.

CAUSE/ REMEDY: Loose parts, rivets, broken springs, etc. Check and repair.

CAUSE/ REMEDY: Bent backing plate. Check and repair if necessary.

CAUSE/ REMEDY: Improper bearing adjustment. Check and adjust bearings. Check for worn or damaged bearings. Replace if necessary.

CAUSE/ REMEDY: Poor adjustment. A certain amount of noise is normal when the brake releases. Proper adjustment will minimize the noise.

DASH AIR CONDITIONER/HEATER

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

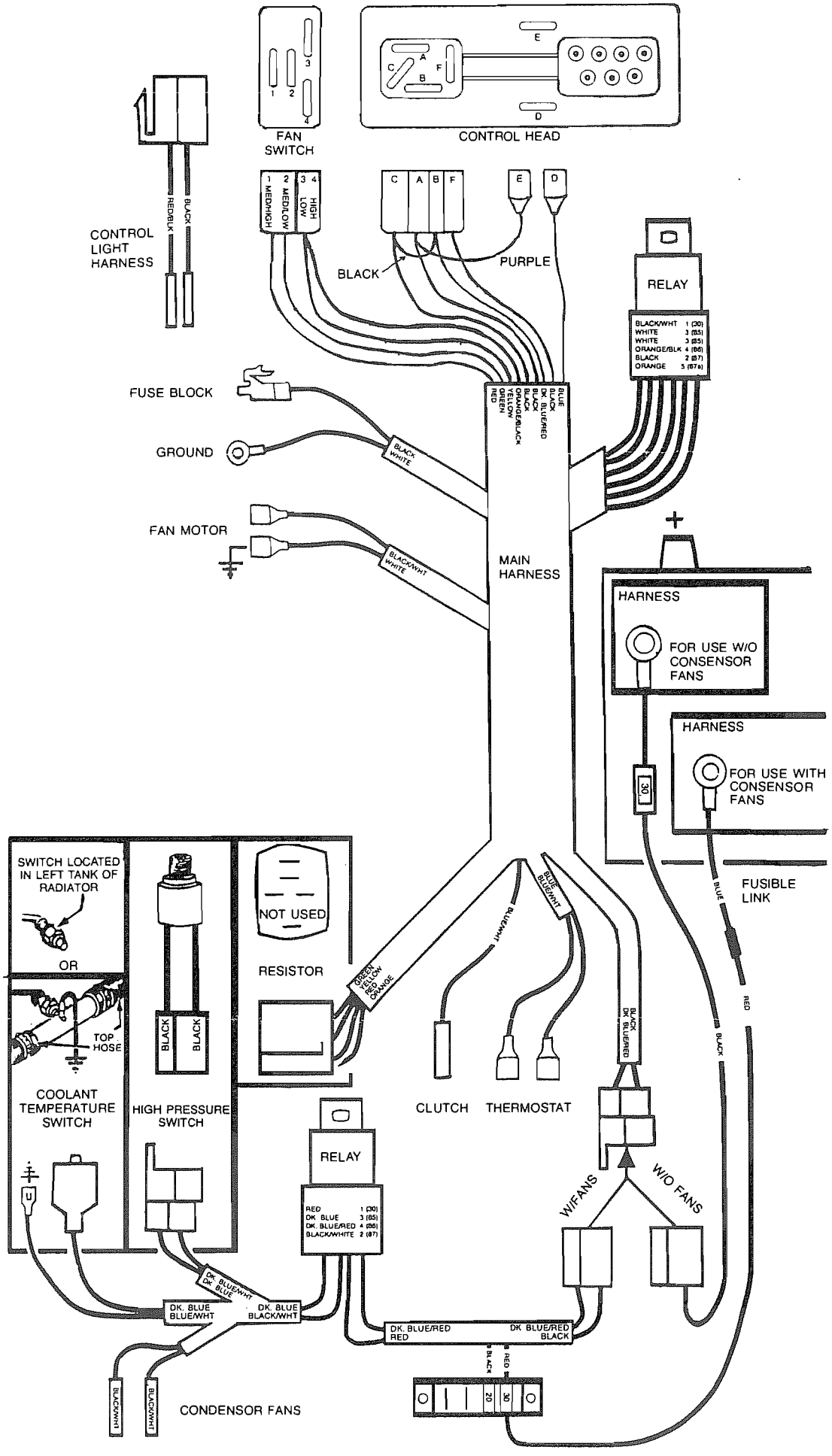
OPERATION

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.

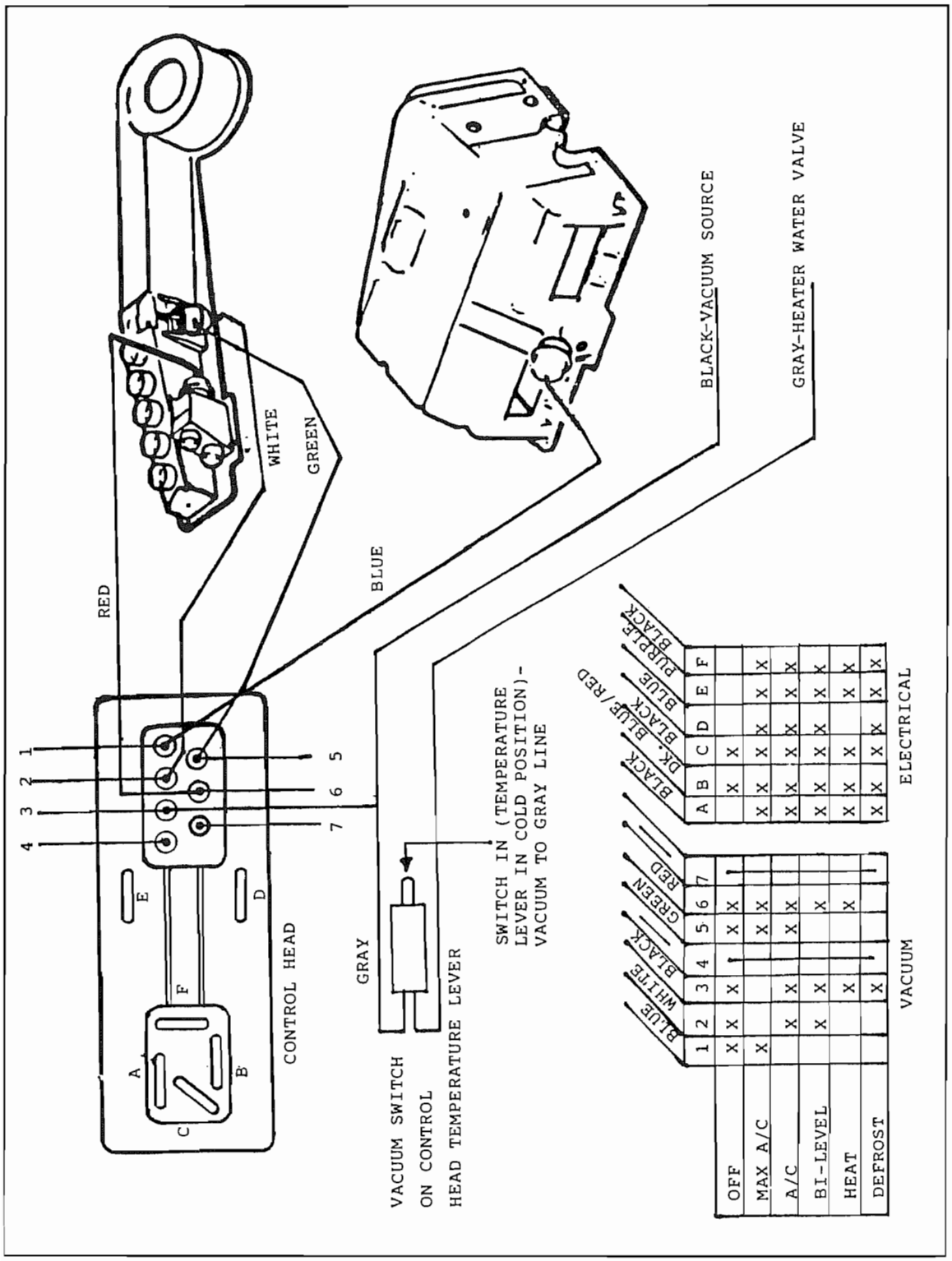
SERVICE

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.


FAN SWITCH
CONTROL HEAD
CONTROL LIGHT HARNESS
RED/BLK
BLACK
MED/HIGH
MED/LOW
LOW
HIGH
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
TOP HOSE
COOLANT TEMPERATURE SWITCH
HIGH PRESSURE SWITCH
NOT USED
RESISTOR
CLUTCH
THERMOSTAT
RELAY
W/FANS
W/O FANS
CONDENSOR FANS

VACUUM SCHEMATIC



AUXILIARY HEATER

The auxiliary heater, located under the dinette, is plumbed into the radiator system. Two "tees" are located between the engine and the front heater. The water lines to the heater are routed under the floor. By using the two speed dash fan, along with the water valve, the temperature output can be varied.

WATER HEATER

Your motorhome uses a water heater with a motor aide feature. This feature circulates radiator cooling through an exchanger in the water heater as you drive. It is plumbed from the same hoses that supply hot water to the auxiliary heater. For further information on your water heater see the Appliance Section of this manual. The water heater with motor aide has caused some complaints. It seems that once you take your motorhome out for a long drive you can't light the burner of the water heater....because the water is already hot!

FUEL SYSTEM CHEVROLET

Except for the fuel tank, the system is all standard Chevrolet parts supplied with motorhome chassis. An electric fuel pump is located on the fuel pick-up tube within the fuel tank. You'll hear this pump run for just a few seconds when the ignition key is turned on. The Chevrolet relay operating the pump would be mounted on the frame work to the left of the engine just below the accelerator.

It should also be noted the Chevrolet fuel system has an in-line filter located along the main frame rail just forward of the step area. The Chevrolet part # is 25055347 or Delco GF 509.

TIRES

The tires installed on your Airstream motorhome are engineered to provide a proper balance of performance characteristics for normal vehicle operation.

This section contains some tips on how you can obtain the most benefit from these tires. Your Chevrolet drivers manual also contains important information on tires, and should be reviewed.

Incorrect tire inflation pressures can have adverse effects on tire life and vehicle performance. Too low an air pressure causes increased tire flexing and heat build-up. This weakens the tire and increases the chance of damage or failure and can result in tire overloading, abnormal tire wear, adverse vehicle handling, and reduced fuel mileage. Too high an air pressure can result in abnormal wear and harsh ride, and also increase the chance of damage from road hazards.

Tire inflation pressures should be checked at least monthly and when significantly changing the load you plan to carry in your motorhome. Always check tire inflation pressures when the tires are "cold".

Standard inflation pressures for tires are listed in the "Minimum Tire Inflation Pressure at Gross Vehicle Weight Rating Chart." Front and rear pressures are shown for each model and GVWR, and are based on the GVWR and front and rear axle ratings (GAWR's) printed on your vehicle VIN plate and Certification label. Tires must be inflated to these pressures when the vehicle is fully loaded or an axle GAWR is reached.

MINIMUM TIRE INFLATION PRESSURE (PSI)

Model		Tire Size	Front	Rear Duals	Tag
30 ft.	16,000 GVWR	8:00-19.5	70 psi	65 psi	—
33 ft.	17,000 GVWR	8:00-19.5	70 psi	60 psi	60 psi
36 ft.	18,000 GVWR	8:00-19.5	70 psi	60 psi	60 psi

The outer tire of a pair in dual wheel installations generally wears faster than the inner tire. When vehicles are driven continuously on high crown roads, an increase in air pressure of from 5 psi to 10 psi on the outside tire of each dual produces maximum tire life

Proper FRONT END ALIGNMENT improves tire tread mileage. Your front end suspension parts should be inspected periodically and aligned when needed. Improper alignment may not cause the vehicle to vibrate. However, improper toe alignment will cause front tires to roll at an angle which will result in faster tire wear. Incorrect caster or camber alignment will cause your front tires to wear unevenly and can cause the vehicle to "pull" to the left or right. The Chevrolet front air bags are inflated to 55 psi when the motorhome is originally aligned. If this pressure varies excessively alignment will be affected.

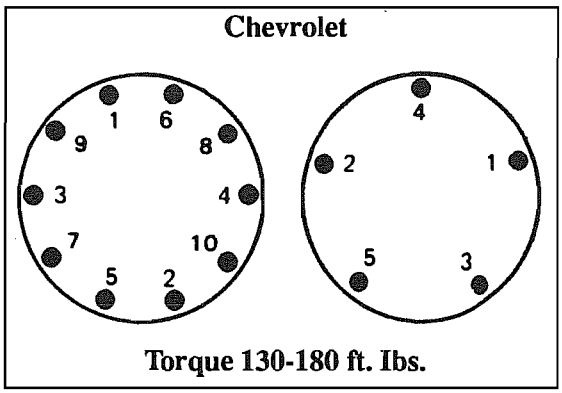
TIRE CHANGING

When removing steel wheel rim to change a tires, loosen all wheel nuts approximately flush with end of stud, then tap clamp ring to loosen rim. Do not remove nuts until clamp rings are free or clamp ring may fly off of stud. When installing rim be sure pins on clamp ring face outboard. Then tighten attaching nuts alternately and evenly to avoid excessive wheel run-out. See torque values and sequence diagram. Aluminum wheels do not use the clamp ring and may be removed in the normal fashion.

LUG NUT TIGHTENING SEQUENCE

WHEEL NUT TORQUE MUST BE CHECKED AT 100, 1,000 and 6,000 MILES, AND EVERY 6,000 MILES THEREAFTER.

To change front tires the jack should be placed under the control arm. Rear tires, both on dual and tag axles, may be changed by placing the jack under the dual wheeled axle close to the tires being changed.



TIRE ROTATION

Radial	First 6,000 Miles and at Least Every 12,000 Miles thereafter.

Front and rear tires perform different jobs and can wear differently depending on the types of roads driven, your driving habits, etc. To obtain the longest tire life you should INSPECT AND ROTATE your tires regularly. (See Tire Rotation Illustration). Many GM dealers and tire dealers will perform a free tire inspection to look for uneven or abnormal tire wear.

For the longest tire life, any time irregular wear is seen have the tires checked and rotated by your truck or tire dealer and have the cause of uneven wear corrected. After rotation be sure to check wheel nut tightness and to adjust the tire pressures, front and rear.

WARNING: **Wheel nuts should he tightened at certain intervals. See Wheel Nut tightening Sequence.**

There are three different tire rotations we recommend on the 32 ft. model. Rotation A and B, as illustrated on the following page, are to be used with steel wheels. (Rotation A should be done at approximately 6,000 miles and Rotation B at 12,000 miles.) Rotation C is to be used with aluminum wheels.

The 36 ft. and 33 ft. models have two different rotation patterns: Use Rotation D if the wheels are steel, and Rotation E if you have the optional aluminum wheels.

Your local tire dealer, upon inspection of your tires, may have a tire rotation recommendation that better fits your driving habits and the characteristics peculiar to your vehicle.

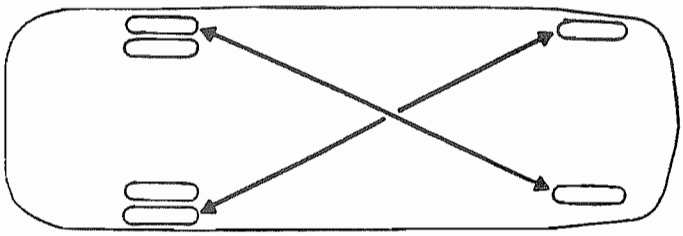
Note: It is recommended that disc brake pads be inspected for wear whenever tires are rotated.

TIRE ROTATIONS

Rotation A

30 Foot Model

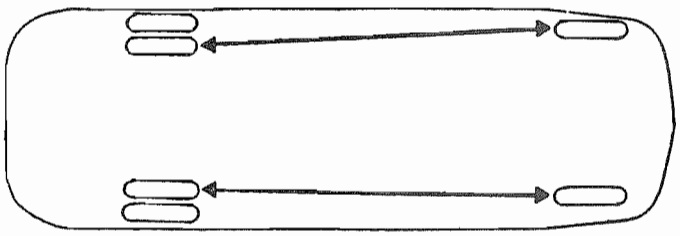
Steel Wheels



Rotation B

30 Foot Model

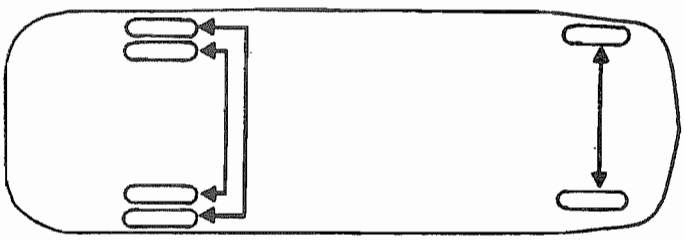
Steel Wheel



Rotation C

30 Foot Model

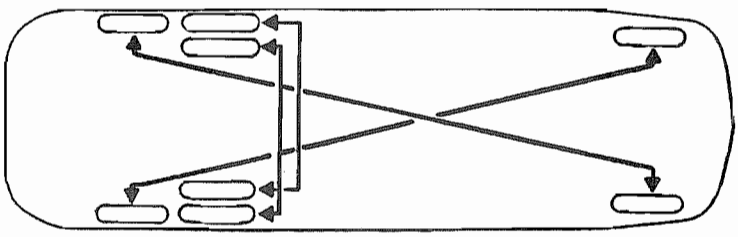
Aluminum Wheels



Rotation D

33 & 36 Foot Model

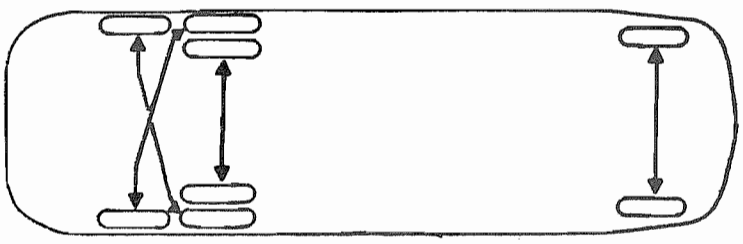
Steel Wheels



Rotation E

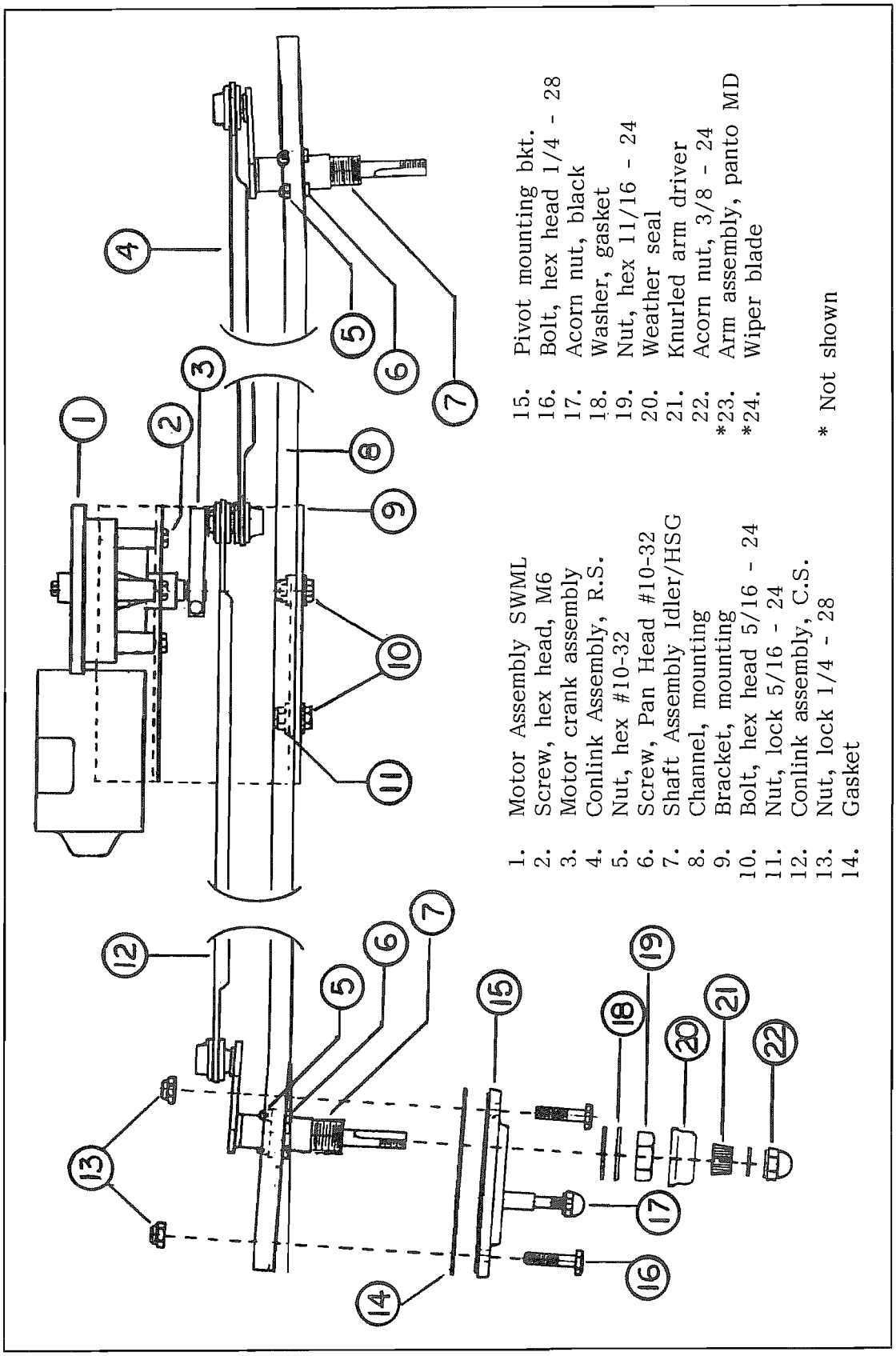
33 & 36 Foot Model

Aluminum Wheels



NOTES

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

Manufacturer: A & E Systems
Division of Dometic Corporation
509 South Poplar Street
LaGrange, IN 46761
Phone: (219) 463-4858

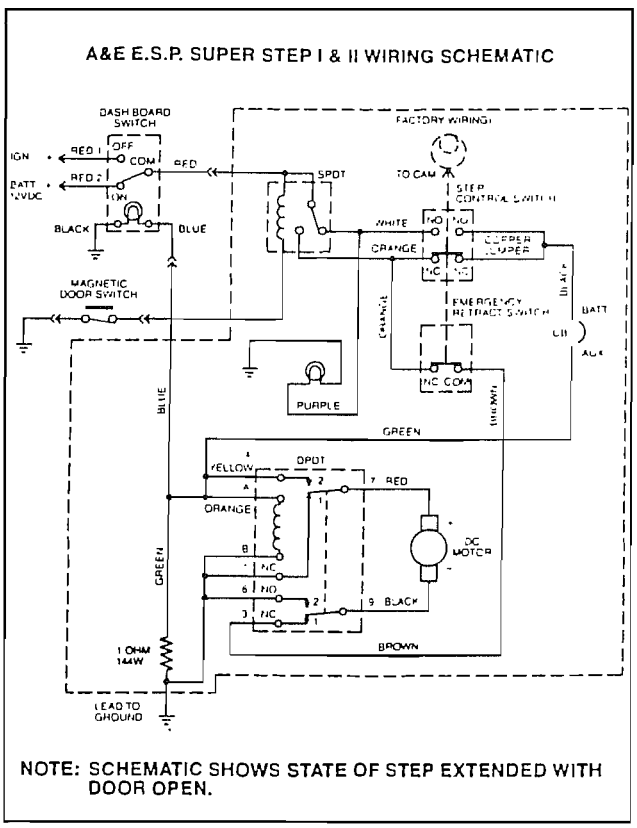
The step is easy and convenient to operate. Just inside the main door is a wall switch for the step. When traveling leave the switch in the "ON" position. The step will lower when the door is opened and retract when the door is closed.

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.

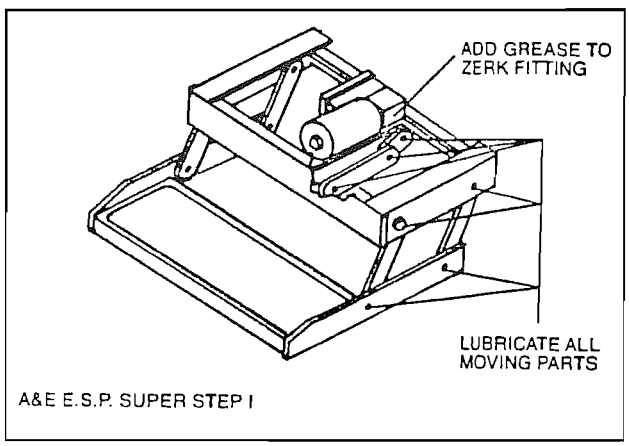
CAUTION: Leaving the wall switch in the on position will run your battery down!

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.



NOTE: SCHEMATIC SHOWS STATE OF STEP EXTENDED WITH DOOR OPEN.

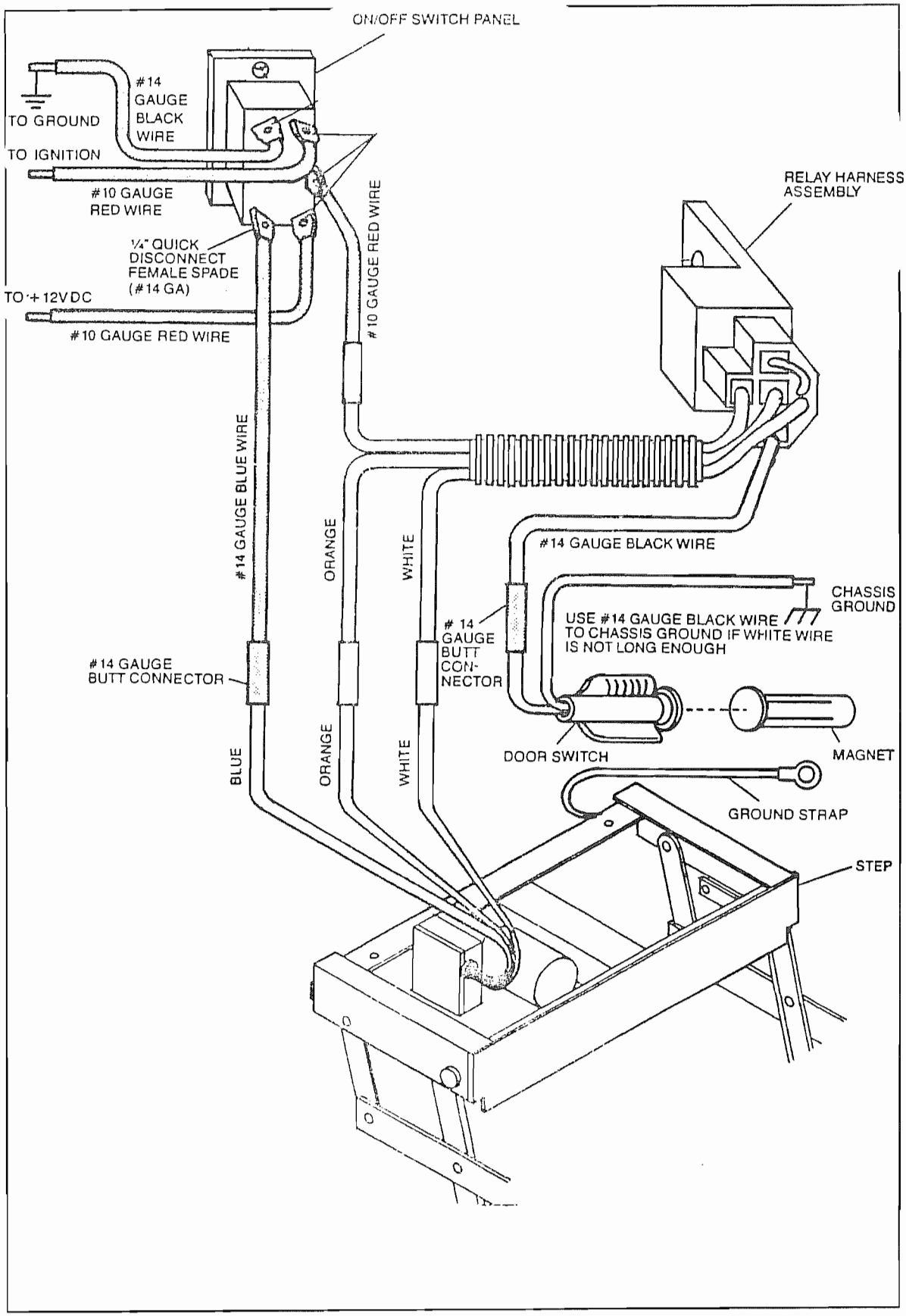


A&E E.S.P. SUPER STEP I

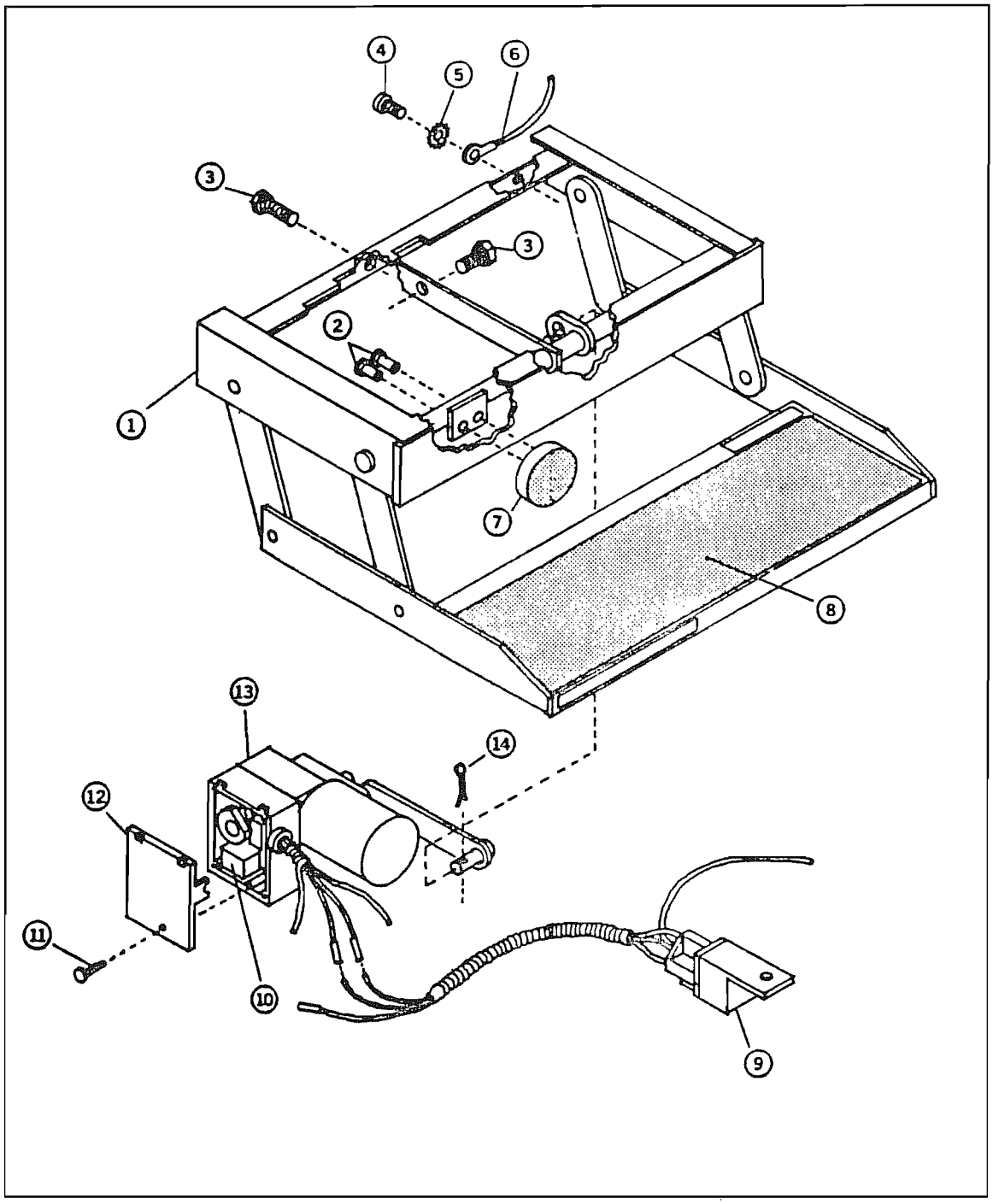
FRAME LUBRICATION

Lubricate all moving parts of the E.S.P. Super Step I & II periodically (with every vehicle oil change). Use SAE 30 weight oil to lubricate all points of mvement as indicated. Motor output shaft should be greased once a year by applying grease ito zerk fitting. Fig. 6.

WIRING DIAGRAM



EXPLODED VIEW/PARTS LIST



No.	Part No.	Description
—	954627	A&E E.S.P. Super Step I
1.	854739	Step frame
2.	114200	3/16 D x 1/4 grip aluminum rivets
3.	114205	3/8-16 x 3/4" hex bolts
4.	114369	1/4-20x3/8 hex head washer screw
5.	114523	1/4 I.D. star washer
6.	854711	Ground strap assembly
7.	114202	Amber light
8.	754618	Non-skid step surface
9.	854732	Relayharness assembly
10.	854716	PCB/electric assimbly
11.	114208	#6-32x3/8 phillips pan head screw
12.	754838	Box cover
13.	854712.001	Drive motor assembly
14.	113575	1/8x1 1/4" cotter pin

NOTES

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 roadside rear window) is opened by pulling in and down on the red release bar. Push out on the glass and it will swing clear. 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 assmt you ad 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

A smoke detector is centrally located in the ceiling of your motorhome.

The alarm horn and the indicator light on your detector lets you know whether your detector is working right.

When the indicator light, which you can see through the clear push button of the test switch, flashes once a minute, the detector is operating normally. (Model 83P has a white push button and does not flash.)

When the alarm is sounding the detector has sensed smoke or combustion particles in the air, the alarm will automatically turn off when the smoke in the air is completely gone.

If the alarm horn beeps once a minute the detector's battery is weak and needs to be replaced immediately.

How to take care of your detector.

Your smoke detector has been designed to be as maintenance free as possible. To keep your detector in good working order you must:

Test the detector regularly (weekly is recommended) by pressing on the test switch for up to 10 seconds until the alarm sounds. It's a good idea to test the detector after storage and before each trip. Make sure your family hears the detector and knows how to react.

Replace the battery once a year or immediately when the low battery "beep" signal sounds once per minute. The low battery signal should last at least 30 days.

This detector uses standard nine volt batteries. The detector will work properly with the following batteries.

Eveready #522, #1222, #216
Duracell #MN1604
Gold Peak #1604P, #16045

Eveready and Duracell batteries are available at any retail store that sells batteries.

WARNING: **Do not use any other kind of battery. The detector may not operate properly with other batteries.**

Vacuum the dust off the detector sensing chamber at least once a year. This can be done when you open the detector to replace the battery. Remove the battery before cleaning. Use a soft brush attachment and carefully remove any dust on the detector components, especially on the openings of the sensing chamber. Replace the battery after cleaning.

Clean the detector's cover when it becomes dirty. First open the cover and remove the battery. Then hand wash the cover with a cloth dampened with mild soapy water, rinse it with a cloth dampened with clear water, and dry it with a lint-free cloth. Be careful not to get any water on the detector components. Replace the battery and close the cover.

Test the detector after closing the cover whenever you have opened it to replace the battery or clean it.

LP Leak Test

In the refrigerator inspection compartment a LP gauge has been plumbed in the gas line. To check for leaks, open the L.P. 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.

CAUTION:

Do not paint the unit. Do not spray directly onto the unit any chemicals such as cleaners, air fresheners, hair sprays, insecticides, etc.

DO NOT DIRECT ANY FLAME OR OTHER INTENSE HEAT SOURCE AT THE UNIT.

When powered by a vehicle battery that has been off automatic charge for a period of more than a week, it is advisable to turn the unit off.

The presence of dangerous fumes will activate the buzzer, warning the user of potential danger. The following steps should be taken IMMEDIATELY:

1. Extinguish all cigarettes and other open flames.

2. Have proper extinguisher ready.

3. Turn off all gas outlets and safety valves.

4. Use forced ventilation to reduce the concentration of gas or vapor level. The alarm will stop when a safe level of fumes is reached.

5. Evacuate the area.

6. Call for professional help (Fire Department).

EXPLOSION AND FIRE PREVENTION IS SOUND COMMON SENSE. PUT IT INTO PRACTICE. PREPARE YOUR OWN SAFETY CHECK LIST AND FAMILIARIZE OTHERS WITH IT.

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 modern 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 Trips

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.

TV Backing Monitor

The optional TV backing monitor can be extremely helpful, especially when traveling alone. The Owners Packet includes complete instructions on use. Practice with the monitor in a safe place will make it much easier for you to use when it is really needed.

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 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 raising? 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. Since the generator starts off the same battery as the engine, it is recommended to start the generator prior to shutting off the engine. This will prevent running the engine battery down should there be a difficulty in starting the generator in the cold temperatures.

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.

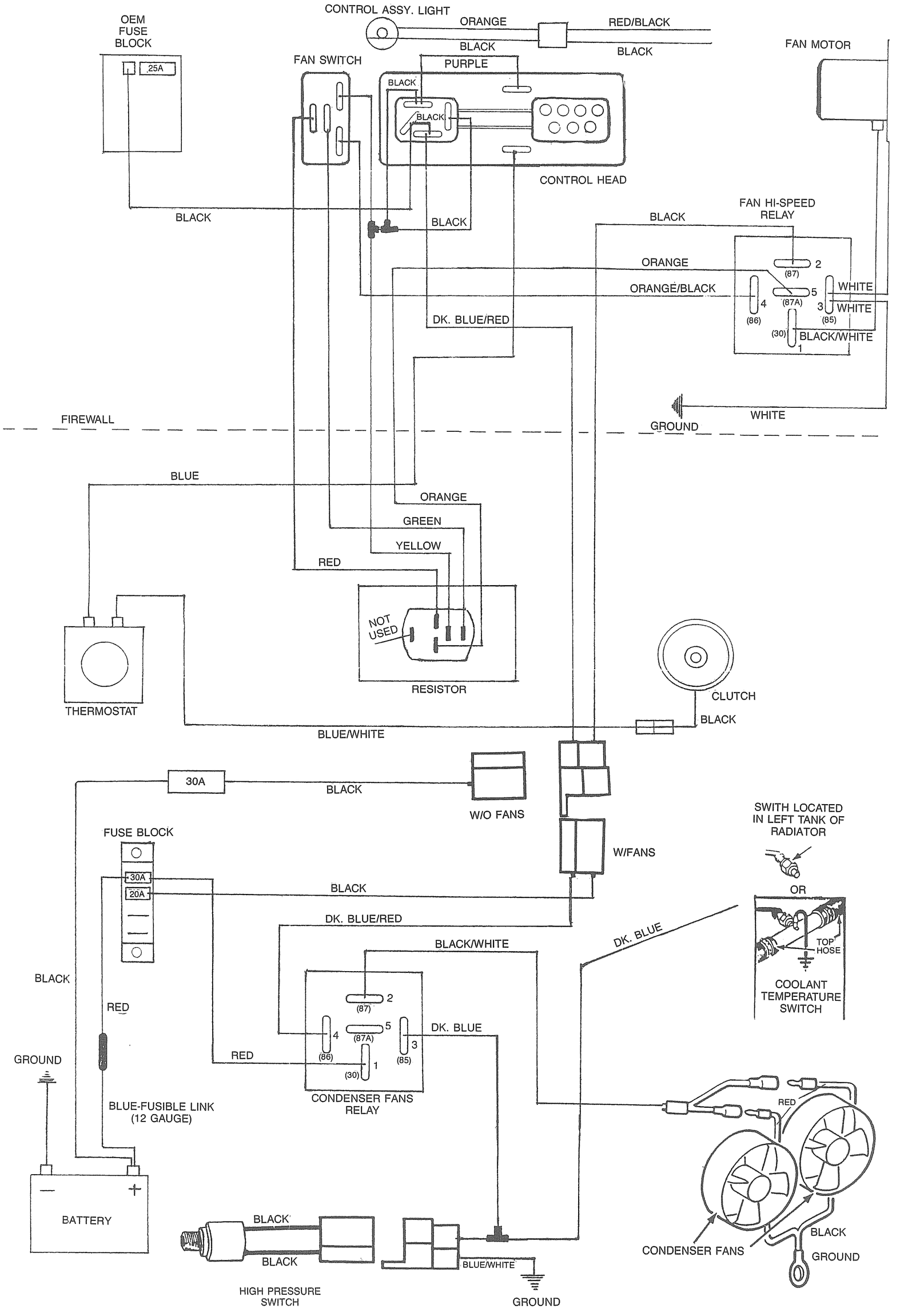
Many things such as baths and showers, boiling foods, washing dishes, washing clothes, even breathing, contribute to evaporation. The inside air can only absorb so much of this moisture before it becomes saturated. At this point it can hold no more, and any additional water vapor condenses back to liquid water in the form of droplets on any available cool solid surface. Temperature has a direct effect on the air's 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 ~~~culation• 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.


CONTROL ASSY. LIGHT
ORANGE
RED/BLACK
BLACK
BLACK
OEM FUSE BLOCK
25A
FAN SWITCH
PURPLE
BLACK
BLACK
CONTROL HEAD
FAN MOTOR
BLACK
BLACK
FAN HI-SPEED RELAY
BLACK
ORANGE
ORANGE/BLACK
DK. BLUE/RED
(87)
2
(87A)
5
4
(86)
3
(85)
(30)
1
WHITE
WHITE
BLACK/WHITE
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
TOP HOSE
COOLANT TEMPERATURE SWITCH
FUSE BLOCK
30A
20A
BLACK
DK. BLUE/RED
BLACK/WHITE
DK. BLUE
BLACK
RED
GROUND
RED
DK. BLUE
BLUE-FUSIBLE LINK (12 GAUGE)
CONDENSER FANS RELAY
BATTERY
BLACK
BLACK
HIGH PRESSURE SWITCH
BLUE/WHITE
GROUND
RED
CONDENSER FANS
BLACK
GROUND

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.

Hook Up to Water by attaching a 1/2" minimum high pressure water hose to the city water service, or the hose from the water reel if so equipped.

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.

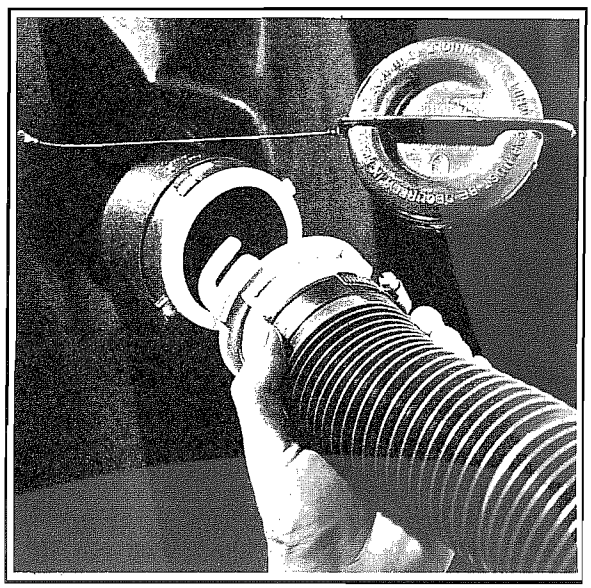
A **Cable TV Hookup** is located on the roadside rear corner of the motorhome. It is already wired into the existing system, so the exterior connection is all that is required.

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 Land Yacht motorhome are laminated Fiberglas. The front and rear bumper is made from Urathane. Urathane is similar to Fiberglas, but it is much more impact resistant.

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

It is important to remove sap, gum, resin, asphalt, etc. as soon as possible after they appear by washing and rewaxing. Sunlight and time will bake-harden these materials making them almost impossible to remove without heavy buffing. If asphalt remains on the 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 Land Yacht dealer.

Main Door Lock

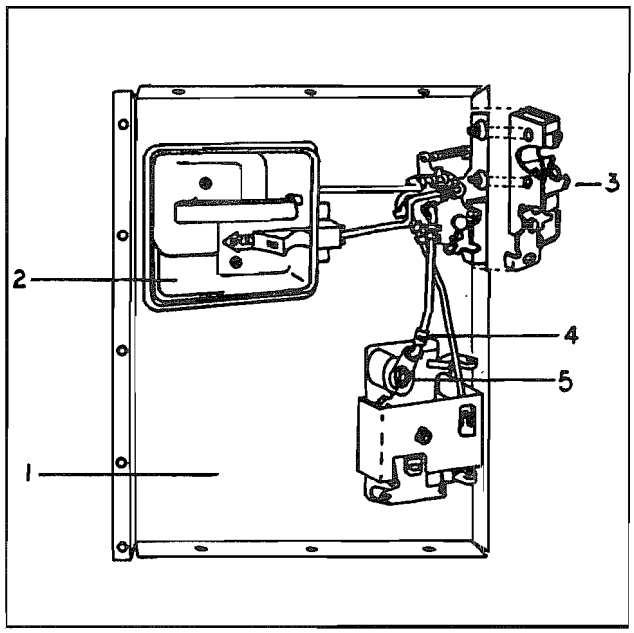
The door lock on your motorhome operates in the same manner as the locks used on most automobiles. Locking the latch actually disengages the linkage between the handles and the latch. This prevents forced entry by using large pliers on the lock handle.

We urge you to keep an extra set of keys for both the door lock and the ignition hidden somewhere on the exterior of the coach. We probably receive a dozen calls a year from people who have lost keys or locked them in the coach. Your keys will overcome the keyless lock system used on the dead bolt.

Occasionally you might find the latch catch, shown in the open position below, out of time. This simply means it has been bumped and has flipped to the closed position when the door is still open. To re-time, hold the door handle in the open position, then pull out and down on the latch catch. It should flip to the open position as shown in the illustration.

1. Mounting plate, Door Lock
2. Lock Handle, Inside
3. Latch Catch
4. Keeper, Rod Linkage
5. "E" ring, Tumbler Installation

(Lock assembly as viewed from inside of door with cover plate removed.)



Access to the linkage mechanism of the lock is gained by removing the two screws holding the lock handle and the center panel of the inside door skin. This will expose the door lock assembly as shown in the illustration.

The tumbler is replaced by removing the inside lock handle and the center panel of the inside door skin so the lock assembly is exposed. Insert key into tumbler then remove the "E" ring (item #5 on Illus) being careful it is not lost.

Keyless Door Entry System

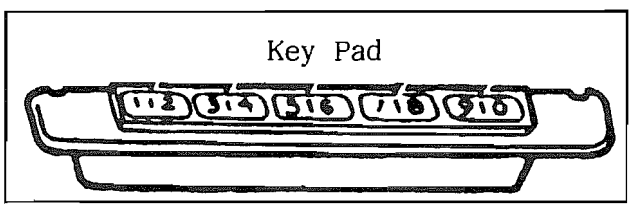
Operation:

Interior

Both driver and main door can be locked manually or electrically. To lock electrically depress the left side of the door lock switch on the dash. To unlock press the opposite side of the switch. Only hold the switch momentarily until you hear the "clunk" indicating the system was activated. The dash switch does not operate the compartment locks.

Exterior

To lock the system, push the last two key pads (7/8 and 9/0) at the same time. All doors will be locked.



To unlock the main door, enter the five digit code provided to you by your dealer on a code card. If more than five seconds elapse between button pushes the system will time out, requiring you to start over.

To unlock the cab door - enter the five digit code then within 5 seconds depress 3/4.

To unlock the compartment doors - enter the five digit code then within 5 seconds depress 5/6.

Note: The compartment door locks will not be in sequence to operate electrically unless the key slots are in the horizontal position.

Owners can also select and program a second personal code. To program this second code, you first have to enter the code from your code card. Then, within five seconds, depress the 1/2 button. Then, within five seconds of each other, depress five buttons in any sequence you desire. This button sequence will be retained by the system as the second code. To erase the second code, simply enter the warranty card code, depress button 1/2, and wait six seconds. This allows you to loan or share your motorhome with another party without exposing your master code.

The system can be overridden with a key if a power failure or electronic failure should occur. We recommend a key be hidden on the exterior of your coach. We are not necessarily worried about a mechanical failure as much as a memory failure. Sometimes names and numbers can totally skip your mind, only to return later. A hidden key could prevent an embarrassing situation.

CAUTION: Do not punch the switch with a car key, ball point pen, pencil, etc. **Hard objects may damage the push buttons. Each button should be pressed on the vertical line between the numbers because there is only one switch under each button.**

Service and Maintenance

Occasionally it will be necessary to clean the lens of the door lock assembly. Use a multi-purpose concentrate, a mild soap, or household ammonia and water solution. Apply with a soft cloth or cotton swab, followed by a clear water rinse.

The electronic module operating the system is located under the galley cabinet mounted to the outside wall. It is fused in a fuse block located at the lower left of the steering column. Further detail may be found in the electrical section of this manual.

There are four major electrical components used to operate the keyless entry system.

* Key Pad
* Dash Switch
* Drive Motor
* Control Module

The CONTROL MODULE is the heart of the system. Twelve volt power from the engine battery supplies power to the module, and is distributed by the control to the key pad drive motor and aisle lights.

The control module and the connections shown on the wiring diagram are located under the galley back against the wall.

If any failure occurs the first check is to look for power at the key pad. Does it light when a key pad is depressed? If not, check the engine battery for charge. If it is okay check for 12 volt positive and negative. Perform this check at the red and white wires providing power to the module as shown on the wiring diagram.

Listen! Depress key pads 7/8 and 9/0. Can you hear the drive motor trying to work the plunger?

Does the dash switch work the lock when the key pad doesn't? If this is the case depress each key pad button one at a time. Pause long enough for the light illuminating the pad to go out between each test. Did each pad make contact indicated by the light being activated?

The dash switch is a simple grounding device. Grounding either wire going to the switch should extend or retract the lock plunger.

CAUTION: Do not ground both wires simultaneously to prevent damage to the control module.

EXTERIOR COMPONENTS

On the curbside of the motorhome forward of the main door is a large compartment door enclosing the LP tank.

The storage compartment behind the main door contains the hydraulic jack, lug wrench warning triangles, air hose with chuck and air gauge. The coupler to attach the air hose is located in the \ To connect the air hose, slide the exterior sleeve of coupler back and insert the air hose - now release the sleeve. Since the pressure in the air system is not much greater than the tire pressure, it is not possible to rapidly fill and empty tires. However, the air system, even though slow will be a blessing if ever needed.

In the rear trunk you will find a crank type wrench and the reel to crank the spare tire up and down. You should operate the reel at least a couple of times a year to keep it turning free and to check your spare tire. You know what will happen if you don't!

The roadside of the motorhome has the big compartment up towards the front and the generator compartment behind that. Towards the rear is another smaller storage compartment.

The hood release latch is located by the drivers left knee. Under the front hood you will find a couple of thoughtful convenience features. Clipped in brackets is a squeegee with an extendible handle that will allow you to clean the windshield without being a trapeze artist. The second item is the light above the oil fill. A rotary switch is on the light itself. **Don't forget to turn it off!**

The ATC fuses below the oil fill are both for the automotive air conditioner. One is for the electric fans you see in front of the radiator. The other fuse is for the high speed mode of the air conditioner circulating fan.

Next to the lower right side of the radiator is the serial numbers. The larger of the numbers is Airstreams serial number. The smaller number next to the bar code is the Chevrolet serial number.

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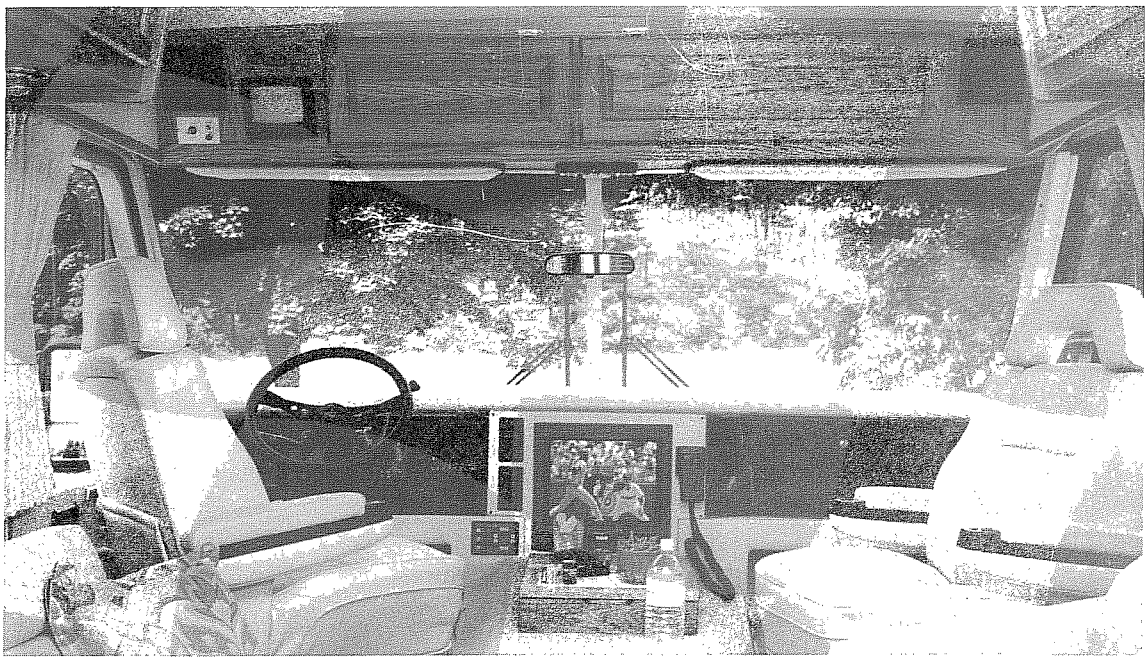


INTERIOR

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 well as the long life of your motorhome.

Lounges

To convert the Deluxe Sofa into a bed it is only necessary to grasp the top of the back rest and pull it toward the aisle of the motorhome. The back rest will raise and pivot out over the seat, becoming the front section of the bed.

Some models are equipped with electrical powered lounges. The switch is in the armrest, and works much like a power seat. Depress switch and hold until lounge is extended. To retract simply depress the opposite end of the switch.

Dinette

Two different configurations of tables are used in the Land Yacht motorhomes.

One features a ***Corian table top** with two pedestal type legs. To make it into a bed the table is lifted clear of the tube legs and the legs are then removed from the floor sockets. A slight twisting motion will aid in removing the legs from their sockets. With the legs out of the way the table top can be lowered to the ledges on the dinette seats. The back rests of the dinette seats are then ;laced on the table top to complete the bed.

The second style of **dinette is hinged to the wall** and is supported by one folding table leg. To make i into a bed the front of the table is lifted slightly, the release latch is depressed on the leg bracket, and the leg is then folded up against the bottom of the table leaf. Velcro will hold it up in position. Raising the front of the table leaf further allows it to be in position. Raising the front of the table leaf further allows it to be unhooked from the wall. The leaf will then swing out and down onto the support ledges on the front of the dinette seat. The back rests are then laid on the table leaf to complete the bed.

*Corian is a trade name used by DuPont.

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 move forward and backward.

On the right side is another lever, but it is hidden behind the skirt and is tight up against the bottom of the chair. This lever has purposely been designed to prevent casual operation since the chair MUST be facing the aisle if it is to be used by passengers when in transit. Releasing the right lever enables you to rotate the chair.

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 screw securing rear end of drapery track to wall, both roadside and curbside.

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

3. After reinstalling drapes, replace screw in end of track.

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 shades are operated in the same manner as most venetian blinds. Pulling down on the rope raises the shade. Swinging the rope to one side prior to releasing it will secure the shade in position.

A feather duster, or the soft-bristled brush often found as part of vacuum cleaner attachments, are recommended for cleaning the blinds and pleated shades.

The mini blinds can be spot cleaned with soapy detergent. However, you must be very careful or you may find yourself washing each individual slat so they'll match.

The longevity of the pleated shades in the rear will be increased if the shades are in the up position when your vehicle is stored.

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.

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.

Optional Corian (a DuPont material) is used for the galley top and some tables. The color is consistent throughout the material, so it is possible to sand out surface damage. Once sanded out, a Scotch Brite pad will bring the surface back to its original luster.

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.

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

Bathroom

CAUTION: **The lavatory bowl and countertop in your bathroom is made of a special ABS long-wearing, light-weight, high-strength plastic material or cultured marble. When cleaning, use soap or detergent only. NEVER USE SCOURING POWDER.**

Always rewax the ABS plastic surfaces after each heavy cleaning with a good grade paste wax (without solvents or cleaners). The wax will protect the surfaces from discoloration and stains. When you first purchase your motorhome Airstream recommends that you give all ABS plastic surfaces a heavy coating of paste wax. This will assure easier cleaning and lasting beauty.

Stainless Steel Sink

Stainless steel sinks are not harmed by boiling water. However, salt, mustard, mayonnaise and ketsup can cause pitting. Stubborn stains will yield to paste made of water and a slightly abrasive household cleaner. Be sure to work in the direction of the polish lines on the steel to keep the original finish. Fingerprints are sometimes a problem. They can be minimized by applying a cleaner that leaves a film of thin wax: simply wipe it on and remove the excess with a dry cloth, or one moistened with a little wax cleaner. The surface should always be washed before wax is applied. Regular cleaning will prevent build up of scale and film. Ordinary soaps or detergents are best for routine cleaning of the stainless sinks. Rinse thoroughly with warm water and wipe dry with a cloth to avoid streaks and spots.

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.

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 ~ 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 SO 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:

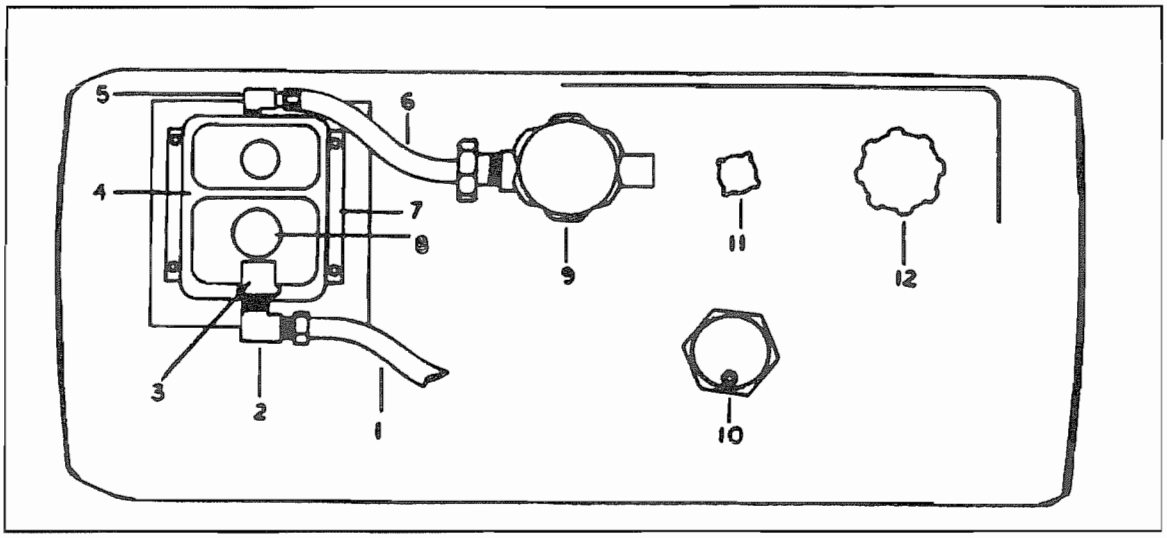
If you smell gas:

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



1. Hose regulator to main gas line
2. Street el 1/2 MPT
*3. Vent
4. Regulator, two stage
5. Street el 1/4 MPT
6. Hose, gas bottle to regulator
7. Mounting bracket, regulator
8. Cap, second stage pressure adjustment
9. Valve, main shut off
10. Gauge
11. 10% valve
12. Valve, fill

***WARNING:**
Check vent each time bottle is filled to make sure it is clear from 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.
5. To replace, reverse the removal procedures.

LPG System Pressure Check

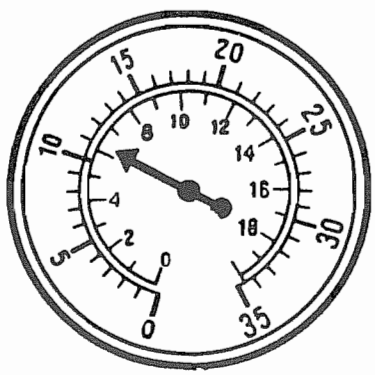
Use a pressure gauge. (See Illustration)

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 pumped 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.

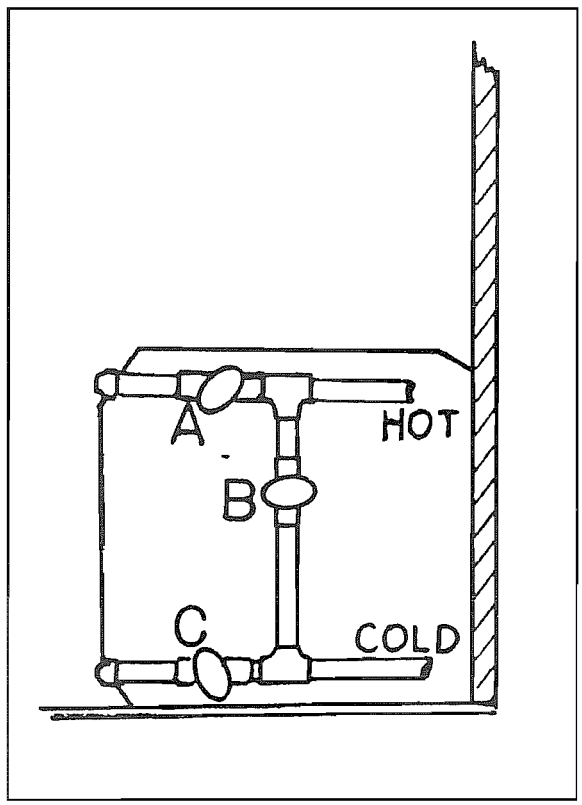
WATER SYSTEM - SELF CONTAINED

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

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

If your monitor panel has the optional "Auto Fill" feature you may fill your water tank in an even easier method. Whenever you are hooked into city water, simply depress the auto fill switch. The fresh water indicator lights will come on and the tank will fill until the indicator shows 3/4 full. At this point the water going into the tank will shut-off, but the lights will stay on to remind you the switch is still in the on position.

Turn water heater by-pass valves to the normal flow position. Access to the by-pass valve in the 36' model is in the bottom of the wardrobe just forward of the bathroom. The by-pass valve access on 33 and 30 foot models is under the galley. The 33 has a close out panel that may be screwed or hinged. On the 30 footer you slide out the bottom galley draw for valve access.



For normal operation open valves A and C and close valve B. To by-pass the water heater for winterizing, close valves A and C and open valve B (see illustration).

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. Be sure to open your Insta-Hot water faucet if your motorhome has this option.

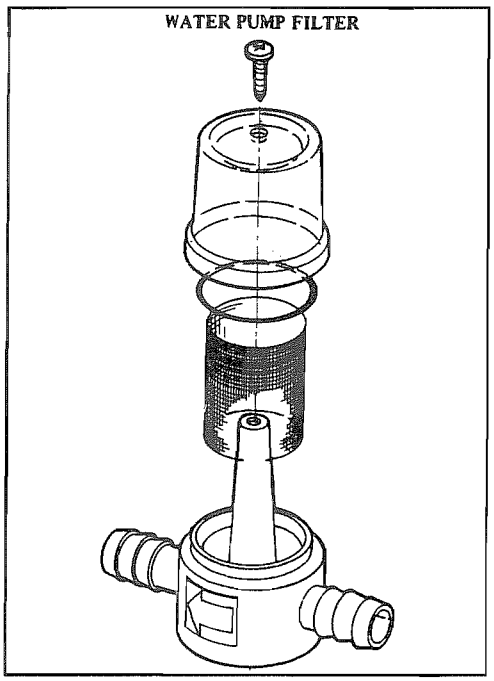
Once the system is filled with water and the

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 rear bed next to the water tank. 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.



To Disassemble Pump Filter

1. Remove screw through top.
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.

AUTO FILL VALVE (OPTIONAL)

The fresh water tank on the motorhome may be equipped with an automatic filling device. Anytime you are hooked up to city water you can fill your fresh water tank by turning the switch, located on the monitor panel, to "ON". The system automatically stops filling when the 3/4 level is reached. The switch should then be turned "OFF".

The system is operated by a solenoid valve plumbed into the water system. When the switch is "ON" the solenoid opens and water from the high pressure lines will flow into the tank. When

the tank monitoring system senses 3/4 full current to the solenoid is cut and the valve closes.

It is normal for the solenoid to be hot to the touch if it has been left on for a long period of time. When operating the water pump the auto-fill valve must be in the off position. Otherwise the pump will simply pump water from the tank into the higher pressure lines and the auto-fill valve will allow the water to go back into the tank again.

Maintenance

The valve should be operated at least once a month when the motorhome is in use. Turning the switch on for just a few seconds will suffice. If the valve is sluggish (you should hear a good solid click), makes unusual sounds when the tank is being filled, or if it fails to shut the water off completely, it would indicate the valve needs cleaned. Procedures are given in the following text.

Causes of Improper Operation

1. **Faulty Control Circuit**: Check the electrical system by energizing the coil. A metallic "click" signifies that the solenoid is operating. Absence of the "click" indicates loss of power supply. Check for loose or blown fuses, open circuited or grounded coil, broken lead wires or splice connections.
2. **Burned Out Coil**: Check for open circuited coil. Replace coil if necessary. Check supply voltage. It must be the same as specified on nameplate.
3. **Low Voltage**: Check voltage across the coil leads. Voltage must be at least 85% of nameplate rating.
4. **Incorrect Pressure**: Check valve pressure. Pressure to valve must be within range specified on nameplate.
5. **Excessive Leakage**: Disassemble valve and clean all parts. If parts are worn or damaged, replace valve.

Valve Disassembly for Inspecting and Cleaning

(Refer to Fig. 1)

WARNING:

Turn off electrical power supply and depressurize valve before inspecting and cleaning. Then proceed as follows:

1. Disassemble valve in an orderly fashion. Use exploded view for identification and placement of parts.
2. Disconnect coil lead wires.
3. Remove retaining spring by dislodging the top spring coil and prying the spring upward.
4. Slip coil off plugnut/core tube sub-assembly.
5. Remove mounting screws, cover, plugnut/core tube sub-assembly, gasket and core assembly with core spring.
6. All parts are now accessible for cleaning.

Valve Reassembly

1. Reassemble in reverse order of disassembly. Use exploded view for identification and placement of parts.
2. Lubricate gasket with Dow Corning 111 compound lubricant or an equivalent high grade silicone grease.

Note: If core spring has been removed from core assembly be sure to install small diameter end of core spring on core assembly first. The core spring should snap in place and remain engaged.

3. Replace core assembly, core spring, gasket, plugnut/core tube sub-assembly, cover and mounting screws. Torque mounting screws in a crisscross manner to 9 + 2 inch-pounds.

4. Replace coil and retaining spring. Make electrical hookup and restore electrical power and line pressure.

5. After maintenance is completed, operate the valve a few times to be sure of proper operation.

Coil Replacement

(Refer to Fig. 1)

WARNING: Turn off Electrical power supply. Then proceed as follows:

1. Disconnect coil lead wires.

2. Remove retaining spring by dislodging the top spring coil and prying the spring upward.

3. Slip coil off plugnut/core tube sub-assembly.

4. Install new coil and replace retaining spring.

5. Make electrical hookup and restore electrical power.

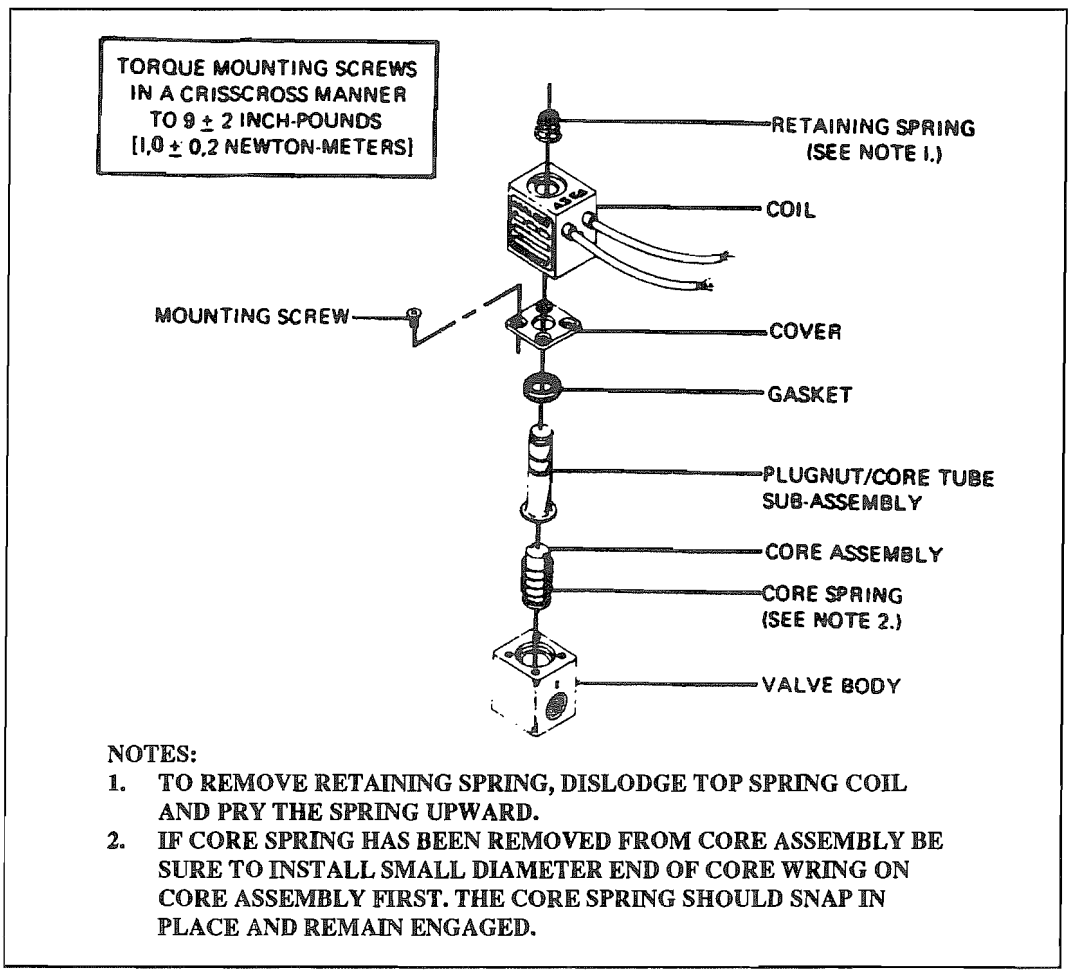
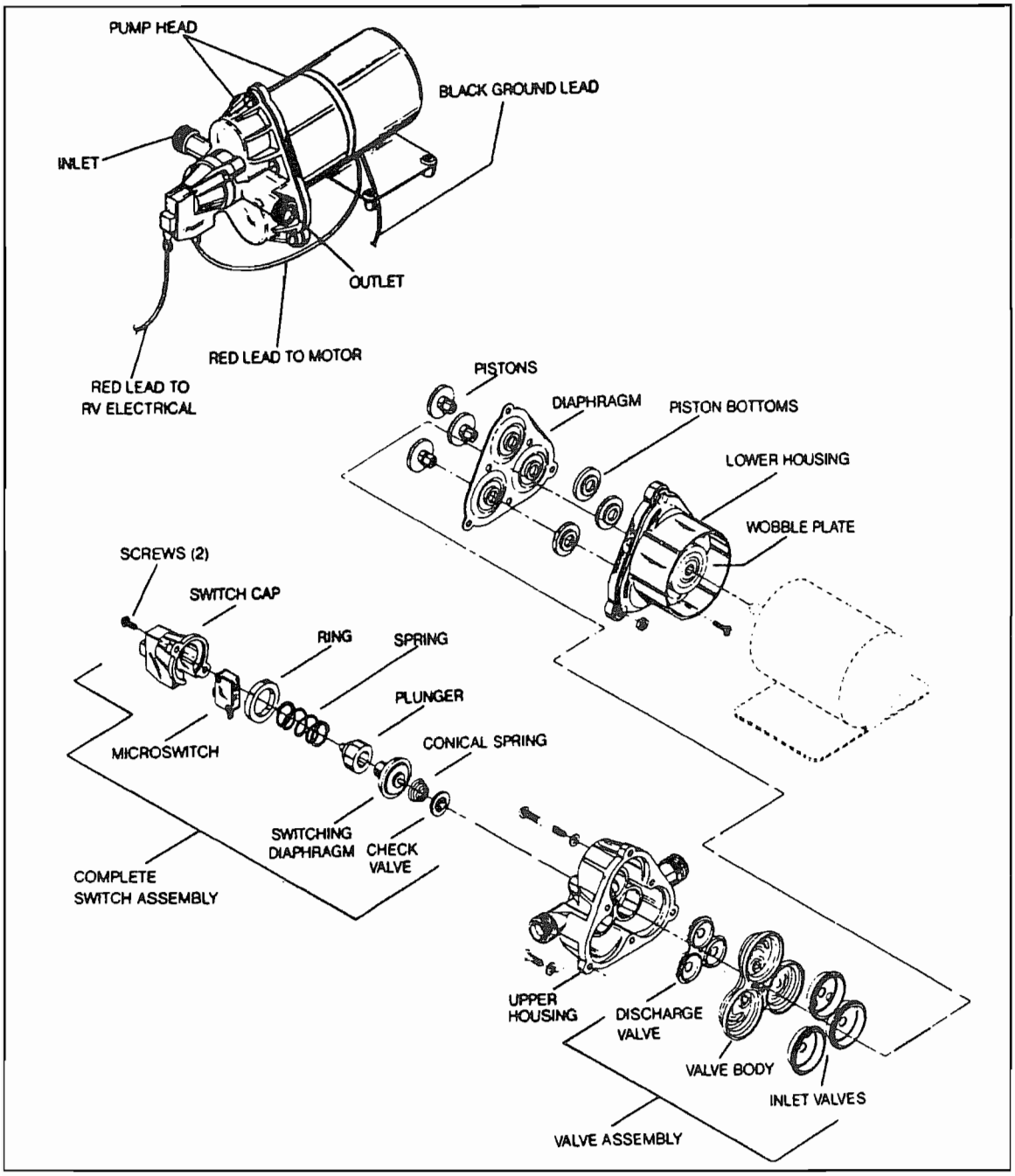


FIG. 1

WATER PUMP

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



Switch and Check Valve Repair

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

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

Replacement of Micro Switch

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

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

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

Having replaced the micro switch be careful to rewire correctly.

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

Check Valve Problems

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

Properly Installed, the Pump will:

PRIME: The pump will automatically prime itself.

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

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

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

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

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

Trouble Shooting

MOTOR DOES NOT OPERATE.

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

MOTOR RUNS BUT NO WATER FLOWS.

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

MOTOR RUNS BUT WATER "SPUTTERS"

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

PUMP CYCLES ON AND OFF WHEN ALL OUTLETS ARE CLOSED.

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

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

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

PUMP DOES NOT ACHIEVE SHUT OFF

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

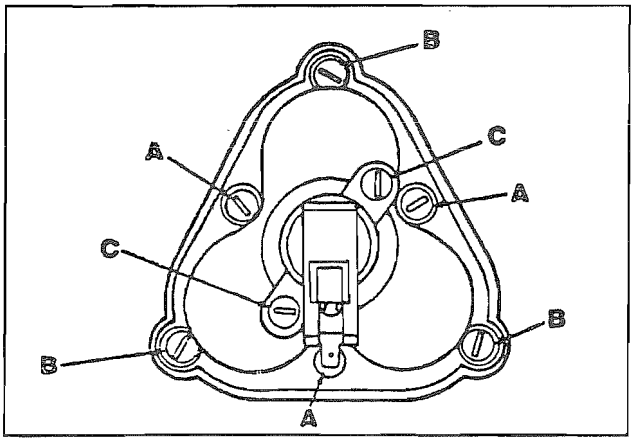
PUMP HEAD LEAKS

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

CAUTION: **Do not overtighten. 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.

INSTA-HOT WATER DISPENSER

Manufacturer: In-Sink-Erator Division
Emerson Electric Company
4700-21st Street
Racine, Wisconsin 53406
Phone: 414-554-5432

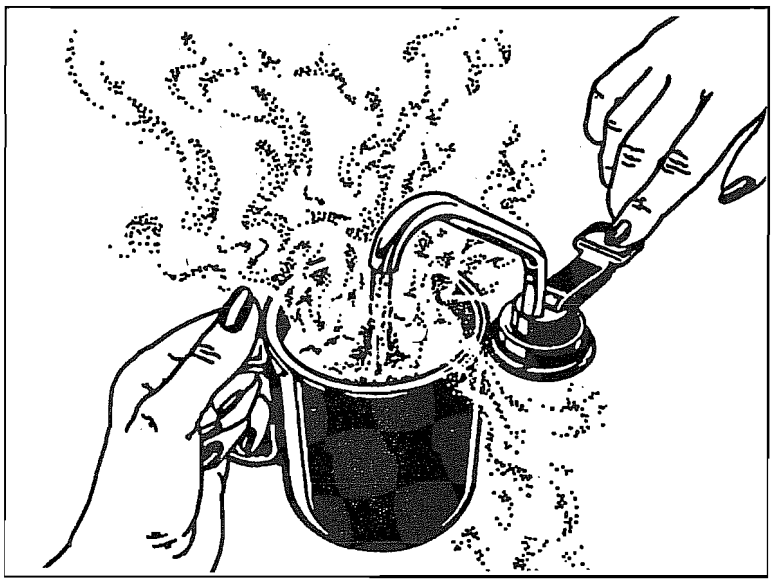
The optional Hot Water Dispenser is provided current through a wall switch above the galley. After the switch has been on a short while one third gallon of hot water is available for coffee, tea, chocolate and soups.

WARNING: **This water is HOT. Contact to the skin will cause discomfort and may cause injury.**

WARNING: **Do not store paper towels or other flammable materials against the Insta-Hot Water Dispenser.**

The water dispenser is filled by simply opening the faucet when water pressure is available from your pump or city water. The faucet will spit and sputter while filling until a steady stream of water indicates it is full.

CAUTION: **Do not turn the dispenser on until you are sure it is filled with water.**



Valve Stem Assembly Removal

1. Turn dispenser on, drawing off all hot water. Shut off water supply. Disconnect electrical power supply.

2. Remove top mounting nut.

   CAUTION: The dispenser may drop thru the sink and should be supported from under the sink.

   Suggestion: Turn the lower mounting nut further down (l" or more). This allows the dispenser to be pulled upward and held while removing the top mounting nut. Hold the dispenser and assemble another lower mounting nut flat side down in place of the top mounting nut.

   CAUTION: DO NOT support dispenser by grasping spout.

4. The valve stem assembly is now exposed for removal.

5. Note position of tee from valve stem.

7. The valve stem assembly is screwed down securely and a special tool is used to remove it. The tool is 1/4" Hex x 7/8" long, and at one end has two tips 180 degrees apart. A magnetic 1/4" Hex screwdriver (or 1/4' socket wrench) must be used with the valve stem removal tool. Purchase from your hardware store.

8. Position the tool straight down over the valve stem assembly. Engage the two tips of the tool into the two mating notches in the valve stem bushing. Turn screwdriver counterclockwise unscrewing the valve stem assembly from the dispenser.

   Note: Inspect the valve stem assembly for the large "O" ring (see diagram). If the "O" ring is missing, it became lodged under the expansion tube gasket. It need not be removed unless it needs replacing. Retrieving the "O" ring requires removal of the spout and expansion tube gasket. A very thin film of silicone grease applied to the spout OD (gasket end) and spout gasket will assure easier and positive reassembly. (See Diagram) REPEAT: USE ONLY A VERY THIN FILM OF SILICONE GREASE.

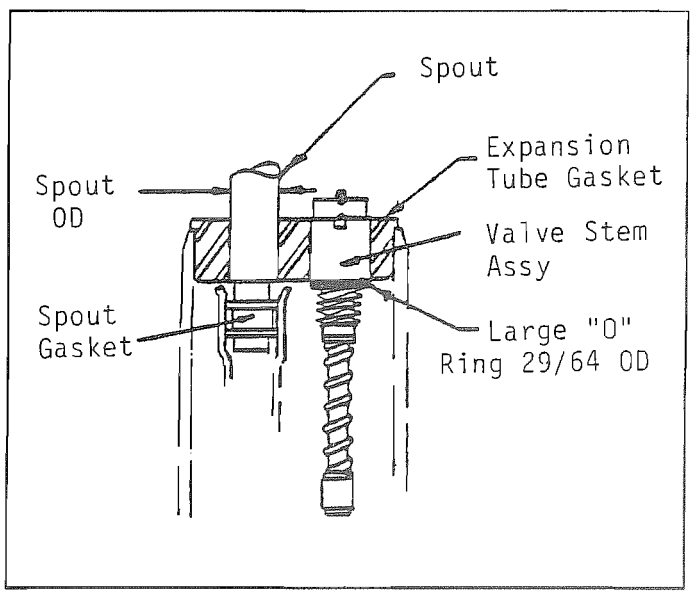
9. Reassemble in reverse. Turn on water supply. Turn on electricity.

Recovery Time/Hot Water Delivery

The recovery time of the hot water dispenser, that is the required time for the water in the tank to reach 190 degrees after drawing hot water, depends on:

* Ambient temperature of the incoming water to the dispenser.
* The amount of water drawn off at one time.

Some people find the taste from a hot water supply objectionable, and may insist on cold water supply. I-S-E suggests cOld water supply.



A cold water supply requires an increase of recovery time while a hot water supply decreases recovery time.

You can expect up to forty 6 oz. cups of 190° water per hour by allowing a 1 1/2 minute recovery time between cups. If you draw three 6 oz. cups of hot water at once, there will be a noticeable drop in the next cup of water. After drawing 3 or 4 cups of water, a 4 (approx) minute recovery time is necessary. If all the water in the tank is drawn off, a 10 to 15 minute recovery time is necessary.

Temperature Checking

Water temperature should be checked immediately after the thermostat shuts off. (Draw off three cups of water. A rumble in the tank will be heard in a few moments. Wait (approx 3 1/2 minutes) until the rumble stops. You can hear the thermostat click open. Hot water is now ready for checking.

Place an accurate high quality thermometer (refrigeration type is suggested) in a styrofoam cup. Do not use any cup made of china, ceramic clay or glass. They are normally cold and will cause a water temperature drop, resulting in an inaccurate reading of the hot water flowing from the dispenser.

Draw 6 oz. of hot water into the styrofoam cup. Allow the thermometer to remain in the cup approximately 15 seconds, then read the thermometer.

Adjusting the thermostat will increase or decrease the water temperature. Allow a few minutes for recovery and test water again if necessary.

Trouble Shooting

PROBLEM: No water or slow flow. (Normal flow is one ounce per second.)

CAUSE/ REMEDY: Main water supply off. Turn on main water supply.

Saddle valve not open. Open saddle valve.

Copper water line not punctured by self-piercing saddle valve.
Close saddle valve completely to puncture copper water supply line. After turning valve in fully, open valve completely.

Saddle valve plugged. Close saddle valve completely. Disconnect 1/4" copper tube at saddle valve. Open saddle valve fully to assure a good strong flow of water. If good strong flow, close valve and reconnect 1/4" copper line. If flow is slow or not at all, saddle valve is plugged where it attaches or water supply line is not drilled or punctured completely.

Valve stem disc stuck to valve seat. Disassemble unit. Remove disc from seat area. Install new disc in valve stem. Reinstall and reassemble.

Dirt at dispenser valve seat. Shut off water at saddle valve. Disassemble and clean seat area. Reassemble and open saddle valve.

Tee nut not adjusted properly. Remove handle and adjust tee nut.

Handle broken. Will not raise valve stem. Replace handle.

PROBLEM: No water, or slow flow.

CAUSE/ REMEDY: Obstruction in tank fill tube at venturi hole. Disconnect electricity by removing plug, fuse, or open circuit breaker. Shut off water supply at saddle valve. Disconnect 1/4" water inlet supply line at saddle valve. Depress valve handle, and at the same time blow into spout outlet. Reconnect 1/4" water supply line to saddle valve. Depress valve handle. If water flows, obstruction has been removed. If no water flows, replace complete assembly.

PROBLEM: Water is cold.

CAUSE/ REMEDY: Plug not installed in outlet. Install plug in outlet.

Circuit breaker open or fuse not installed. Close circuit breaker or install fuse.

Wire loose and/or disconnected at thermostat or heating element. Reconnect wire.

Thermostat not adjusted properly. Adjust thermostat. Thermostat defective. Replace thermostat.

Thermal fuse open. Replace thermal fuse. Open heating element. Replace complete assembly.

PROBLEM: Water not hot enough.

CAUSE/ REMEDY: Thermostat not set high enough. Turn thermostat adjusting screw clockwise to increase operating temperature.

Thermostat defective. Replace thermostat.

Tank hot water supply exhausted. Allow tank to recover to full operating temperature.

PROBLEM: Unit spits when drawing first cup of water.

CAUSE/ REMEDY: No aspirator ball. Install aspirator ball.

Aspirator ball stuck in tube. Dislodge and replace ball. Thermostat set too high. Water boils. Adjust thermostat.

Thermostat set too high. Will not respond to adjustment. Replace thermostat.

No water in expansion chamber. Continued use will fill expansion chamber.

Air in water supply line. Correct household water supply.

PROBLEM: Unit spits after drawing four or five cups of water.

CAUSE/ REMEDY: Aspirator orifice not round. Replace complete assembly.

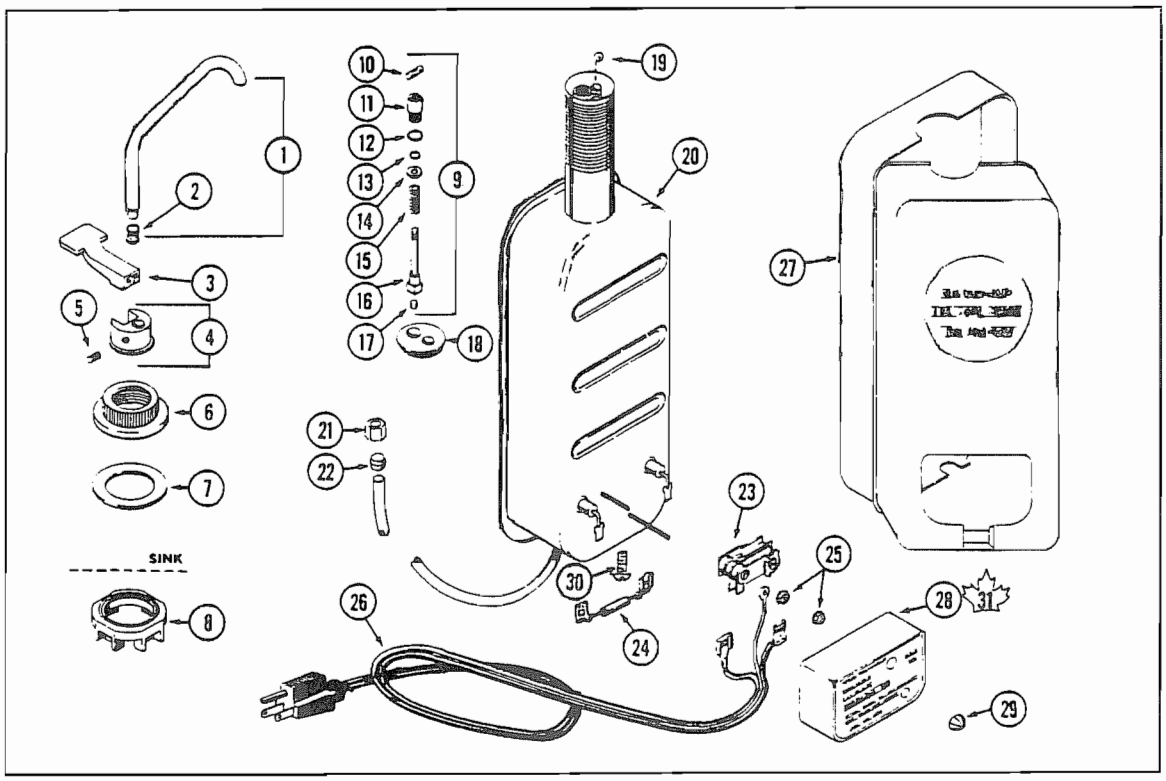
Aspirator ball not round, flat spots. Replace aspirator ball.

Aspirator ball tube not attached properly. Replace tank assembly.

Note: Some "spitting" is normal when drawing quantities of water.

PROBLEM:	Unit drips every 20 minutes when thermostat comes on.
CAUSE/ REMEDY:	Thermostat set too high. Adjust thermostat.
	Expansion chamber full. Check for low water pressure. Spout not fully seated. Loosen set screw, push spout down until it bottoms. Tighten set screw.
	Thermostat mounting stud bent. Not perpendicular to tank face. Straighten stud. Should be 90 degrees to tank face.
PROBLEM:	Water continuously drips from spout.
CAUSE/	Valve not seated due to foreign object. Disassemble and REMEDY: remove foreign object.
	Tee nut not adjusted properly. Adjust tee nut.
	Valve disc missing. Install valve disc.
	Metal valve seat defective. Replace unit.
PROBLEM:	Water leaks around spout.
CAUSE REMEDY:	Valve stem bushing not tight. Tighten bushing.
	Large and/or small "O" ring damaged, cut, missing, etc. Install or replace both large and small "O" ring.
PROBLEM:	Water continues to flow for one to two seconds after handle is released.
CAUSE/ REMEDY:	Normal
PROBLEM:	Unit is loose in sink.
CAUSE/ REMEDY:	Upper and lower nuts not tight. Loosen bottom nut. Tighten top nut firmly, then retighten bottom nut.
	Top nut has bad threads. Replace top nut.
	Expansion chamber tube threads not formed properly. Replace unit.

Parts Diagram - Insta-Hot Water Dispenser

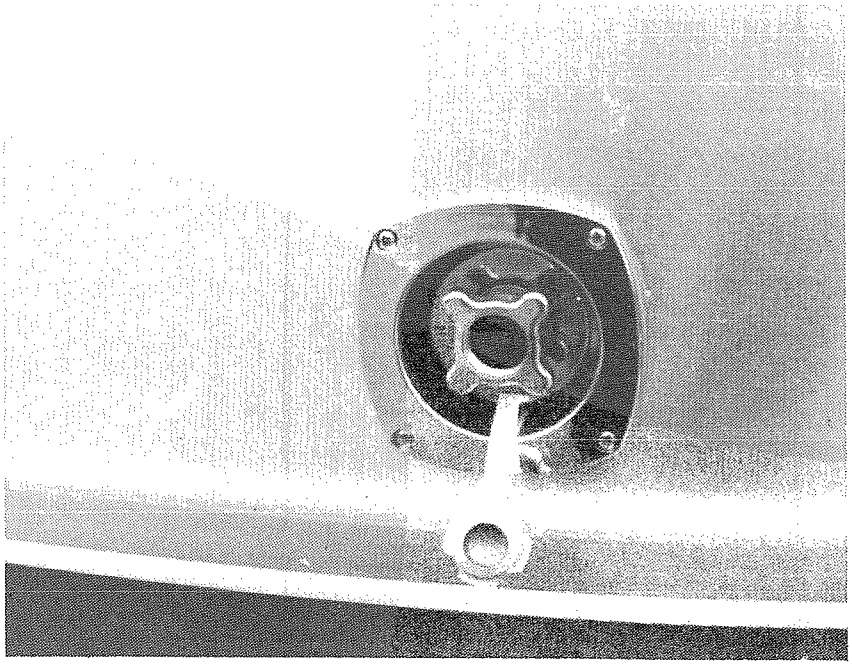


1. Spout Assy
2. Gasket
3. Handle
4. Cover
5. Screw, Set
6. Nut, mounting, upper
7. Gasket, mounting
8. Nut, mounting, lower
9. Valve guide & Stem Assy
10. Nut, tee
11. Bushing, valve guide
12. "O" ring 29/64 OD
13. "O" ring 9/32 OD
14. Washer
15. Spring
16. Valve stem assy
17. Disc, Valve Stem
18. Gasket, Expansion Tube
19. Ball, aspirator
20. Tank Assy
21. Nut compression
22. Sleeve, ball
23. Thermostat
24. Thermal fuse assy
25. Nut
26. Plug & Cord Set
27. Case
28. Electrical Cover Assy
29. Nut, Cap
30. Plug, Drain

CANADIAN

31. Electrical Cover Assy

CITY WATER HOOKUP



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.

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. Be sure to include the Insta-Hot water faucet if your motorhome has this option.

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.

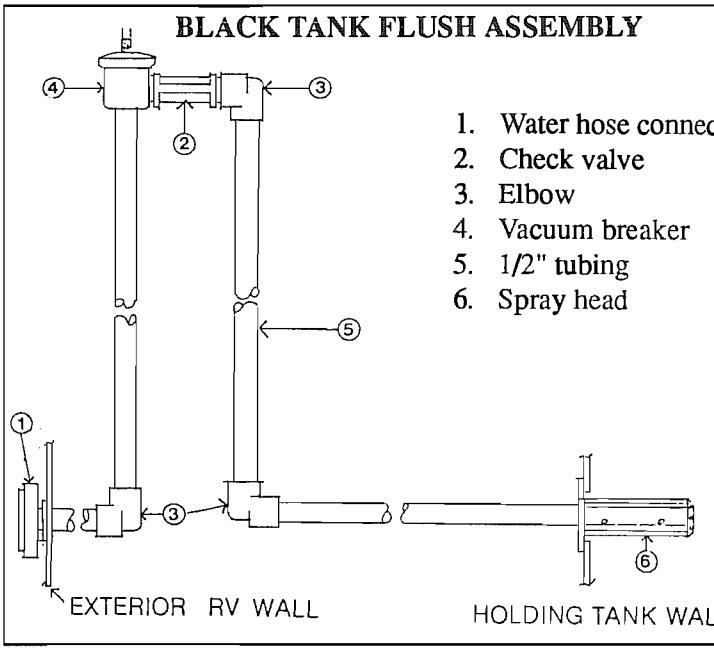
*Access to the bypass valve in the 36 foot model is in the bottom of the wardrobe just forward of the bathroom. Thirty and 33 foot models have the by-pass valves under the galley counter.

BLACK TANK FLUSH

On the left rear lower side is a water hose connector marked "black tank flush". To use, hook-up hose and turn on full force. Within the tank a spray head with a multipled holed head will spray the interior surface of the tank.

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

BLACK TANK FLUSH ASSEMBLY

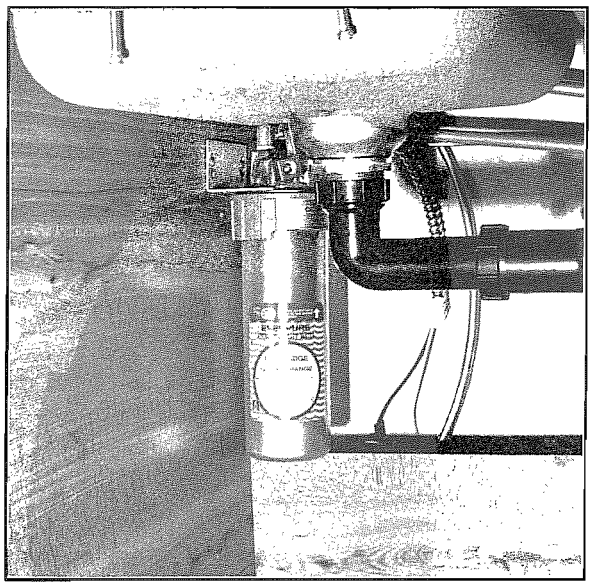


1. Water hose connector
2. Check valve
3. Elbow
4. Vacuum breaker
5. 1/2" tubing
6. Spray head

EXTERIOR WATER SERVICE

Next to the black tank is a second water hose hook-up with a shut off valve. This is plumbed in to the high pressure water system of the motorhome. This is an ideal place to rinse the sand off your feet after going to the beach, cleaning mud off your boots and hundreds of other messy jobs that are better done outside of your motorhome.

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.

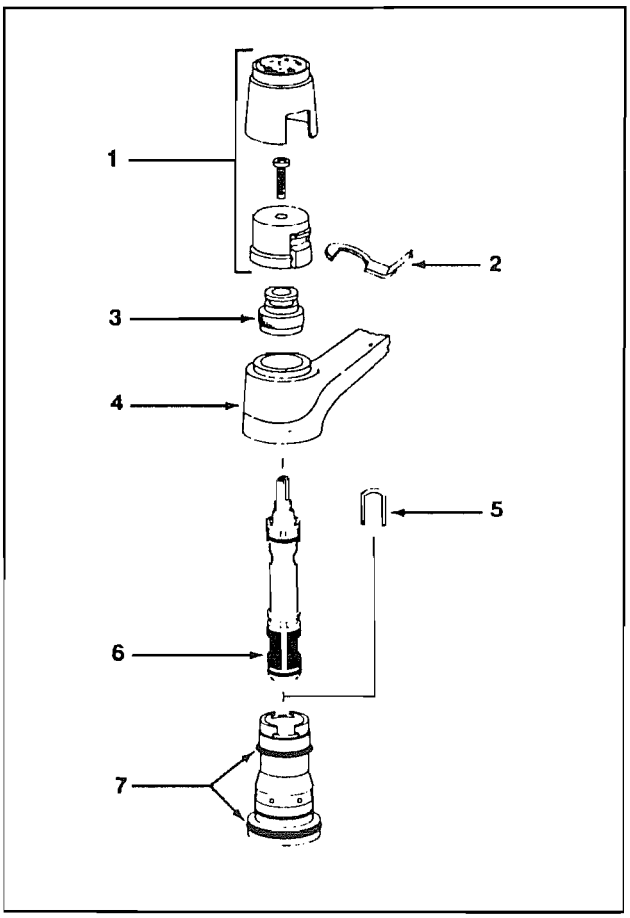
4. To lock ring in place and turn water on, move valve handle down. Be sure handle leg engages ring locking-lug.

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 GALLEY FAUCET

1. Handle Assembly Kit
   Handle Cap
   Handle Screw
   Handle Body
2. Handle Lever
3. Retainer Pivot Nut
4. Spout Assembly
5. Retainer Clip
6. Cartridge
7. Spout Seal Kit

MOEN GALLEY FAUCET DISASSEMBLY AND ASSEMBLY

To disassemble: (Need pliers and screwdriver.)

1. Turn "OFF" both hot and cold water supplies and remove handle screw.
2. Pull handle down. Place screwdriver in screw hole and press down on cartridge stem. Lift and tilt handle housing off.
3. Remove pivot nut with pliers.
4. Lift and twist spout off.
5. Pry out retainer clip with screwdriver.
6. Grasp cartridge stem with pliers. Lift cartridge out.
7. To flush supply lines turn on both hot and cold water supplies slowly.

To assemble:

1. With cartridge stem up, insert cartridge and push down by its ears.
2. Turn cartridge ears to front and back.
3. Turn red (notched) flat of cartridge stem toward sink (Note: for cross piping installations where supply piping is reversed, red (notched) flat faces back of sink.)
4. Replace clip all the way.
5. Replace spout. Push down until it nearly touches the faucet escutcheon.
6. Screw on pivot nut. Do not cross thread. Tighten with pliers.
7. Press cartridge stem down. Holding handle up, hook ring in handle housing into groove on sleeve.
8. Swing handle back and forth until it drops down into place.
9. Replace handle screw. Tighten securely.

To flush the installation:

1. Faucet body and supplies should be flushed under pressure to remove pipe chips or other foreign material that might clog the faucet when in service. To do this make sure the water supplies are "OFF". Follow the detailed instructions. below and disassemble the faucet. Turn on both hot and cold water supplies slowly, and thoroughly flush the installation. Reassemble faucet as shown in the instructions below.

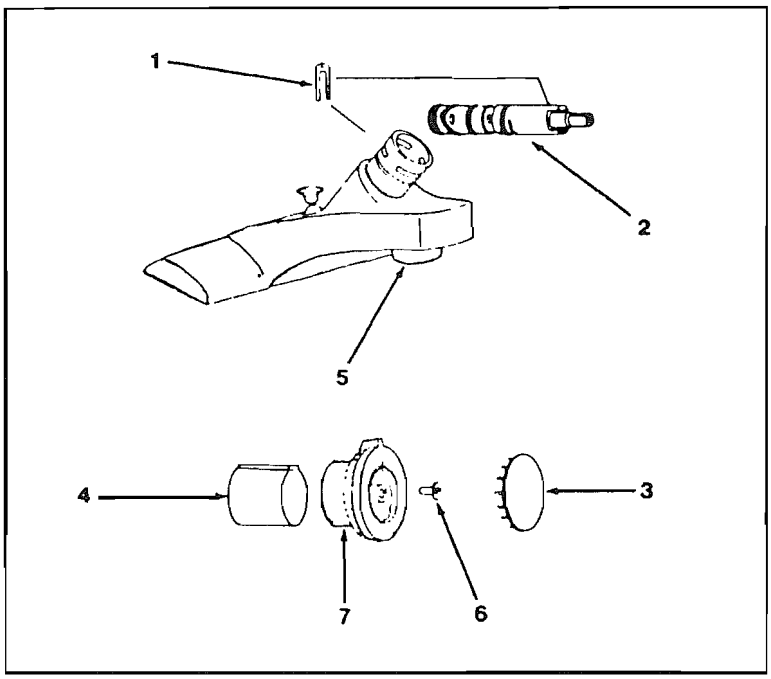
A. If the handle won't operate properly you have not hooked handle ring into sleeve groove. (See step 7)

B. If hot and cold are reversed, the red (notched) flat is not toward the sink. Remove handle assembly. Turn red (notched) edge of stem so it faces sink. (See step C)

C. For proper water flow, aerator must be free of foreign particles. If flow is weak or irregular, unscrew aerator, clean and replace.

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)



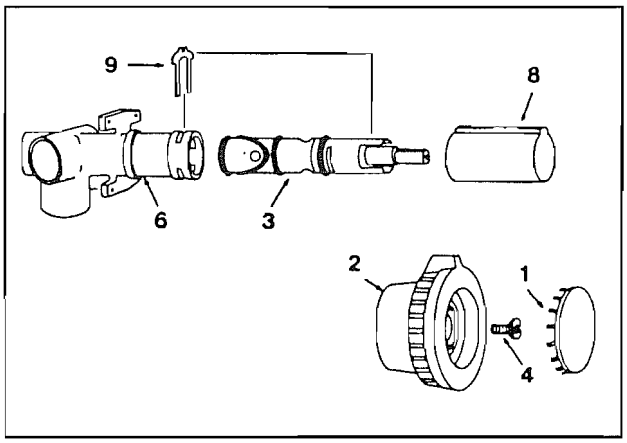
Removal and Replacement

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°.

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

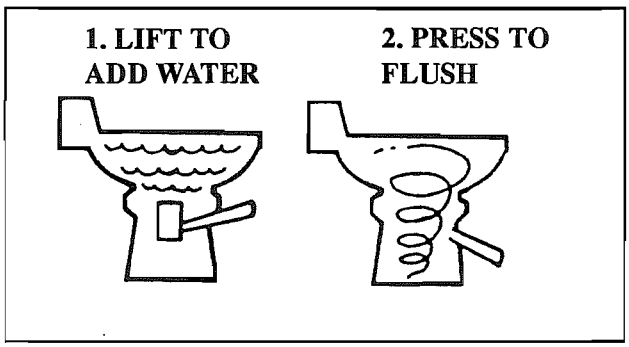
1. To add water to the toilet before using, lift or raise the flush lever until desired water level is reached. Generally more water is required only when flushing solids.

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 howl.

   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.

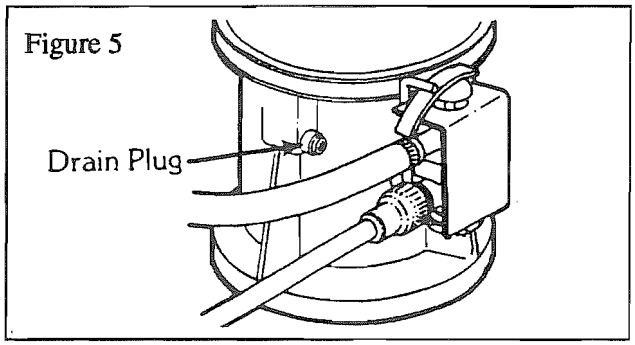
2. Add odor control deodorant in amount specified for your holding tank capacity after cleaning and every few' days during use.

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)
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.

Figure 5



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

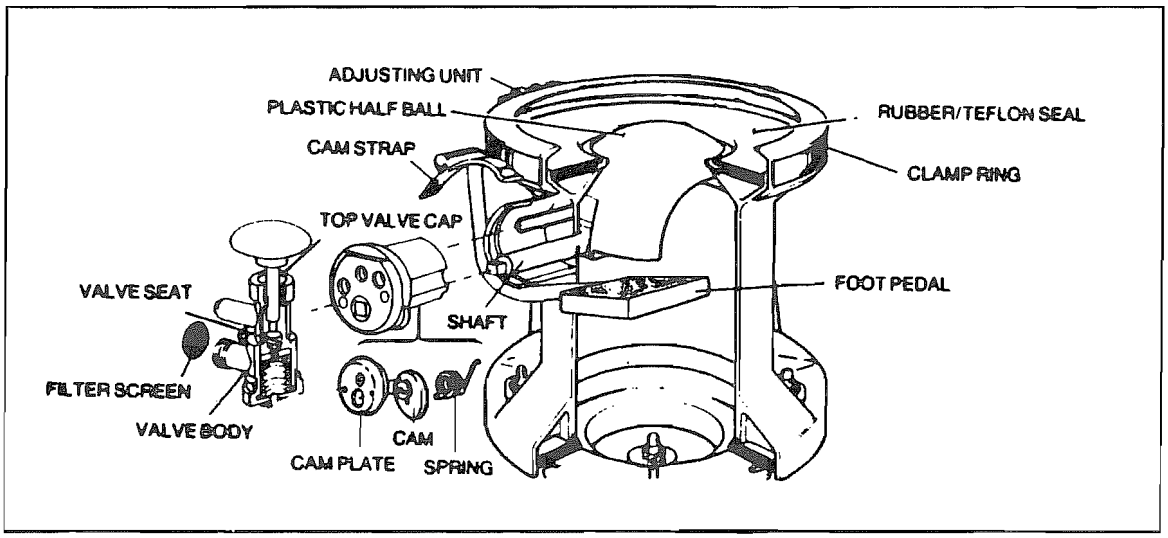
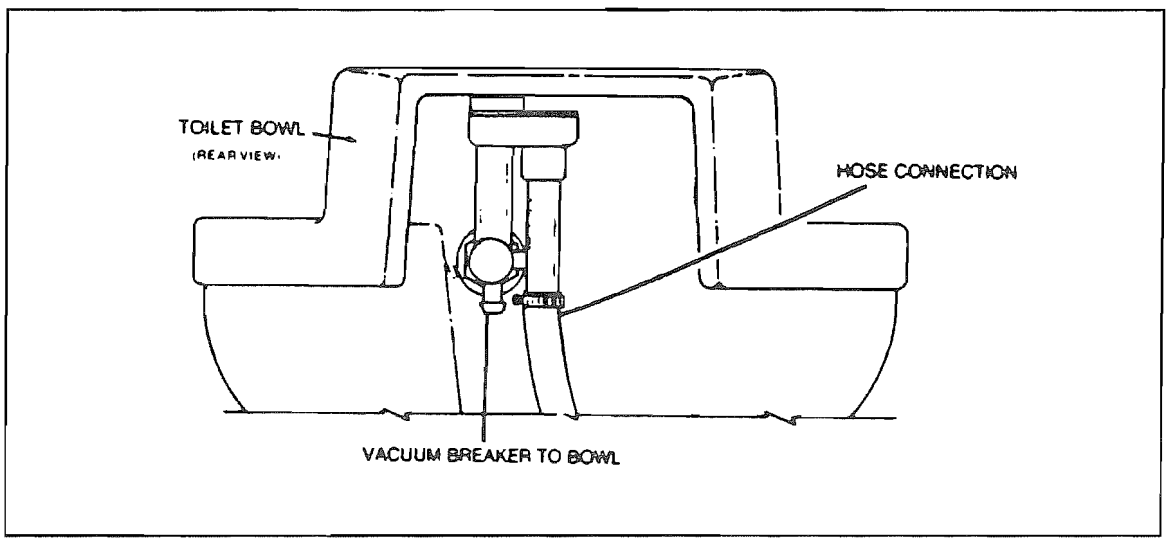


FIGURE 7



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 overtightened 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/ REMEDY: Toilet loose. Tighten toilet mounting bolts.

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/ REMEDY: Loose hose connection. Tighten hose connections.

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.

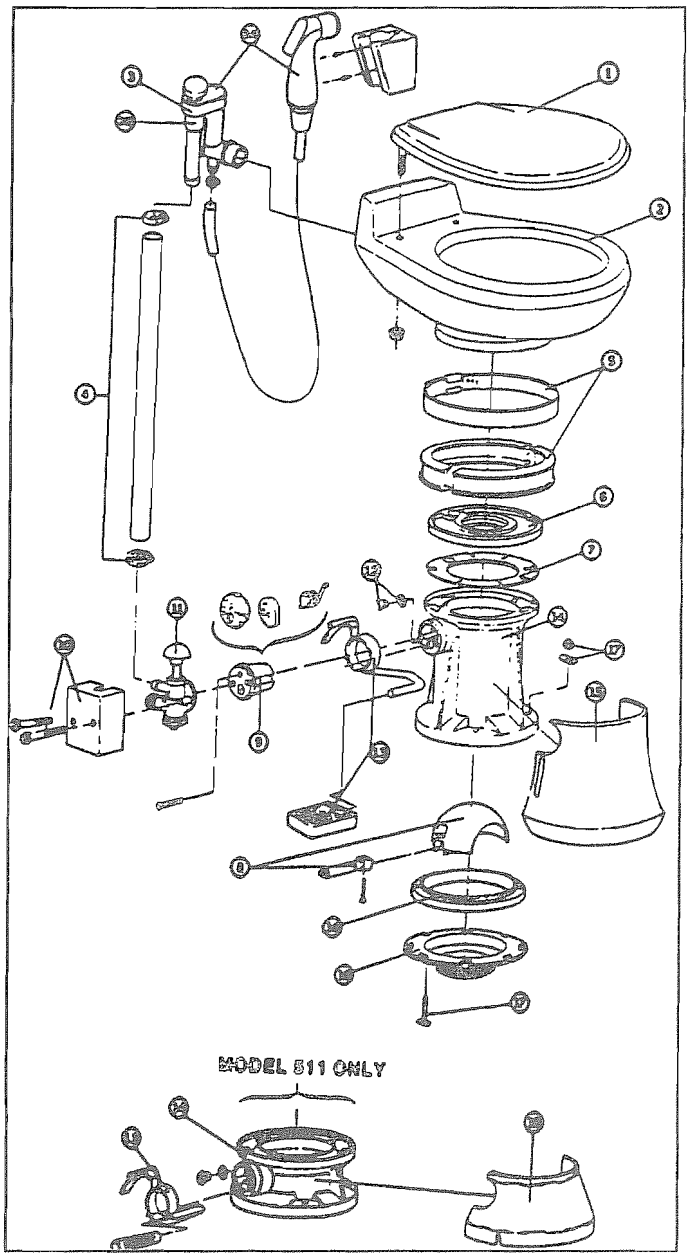
Replacement Parts List (Models 510/511)

1. Seat Assy
2. China Bowl w/vacuum Breaker Kit
3. Vacuum Breaker Kit

3a. Vacuum Breaker w/ hand spray kit

3b. Vacuum Breaker w/ diverter valve assy

4. Universal Tubing Kit
5. Ring & Half Clamps Kit
6. Teflon & Rubber Seal Kit
7. Plastic Seal Support
8. Ball, Shaft & Cartridge kit
9. Spring cartridge assy
10. Valve cover w/screws kit
11. Water valve kit
12. Drain plug, cap w/seals kit
13. Flush lever w/cover
14. Base assy kit
15. Shroud
16. Floor flange seal
17. Floor bolt kit
18. Floor flange w/ 35 MPT



GATE VALVE REMOVAL AND REPLACEMENT

1. Make sure both tanks are empty.

2. Drill out rivet attaching extension handle on some valves.

3. Loosen hose clamp on caulder coupling (see illustration on following page).

4. Remove 4 bolts attaching valve to tank adapter.

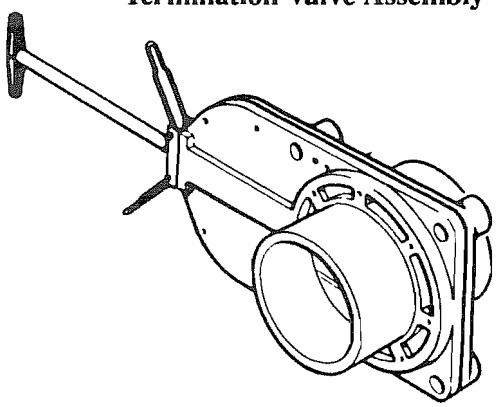
5. Twist 3 inch fittings to free from caulder coupling and remove complete assembly.

*6. Using hacksaw blade, cut valve off next to black drain pipe.

7. Remove the sawed off piece of valve from black pipe by driving a screw driver into the glued joint about 1/4" deep in about six places. Next drive the screwdriver in about 1/2" deep in six new places. Continue until white piece of cut off gate valve pops free from plumbing.

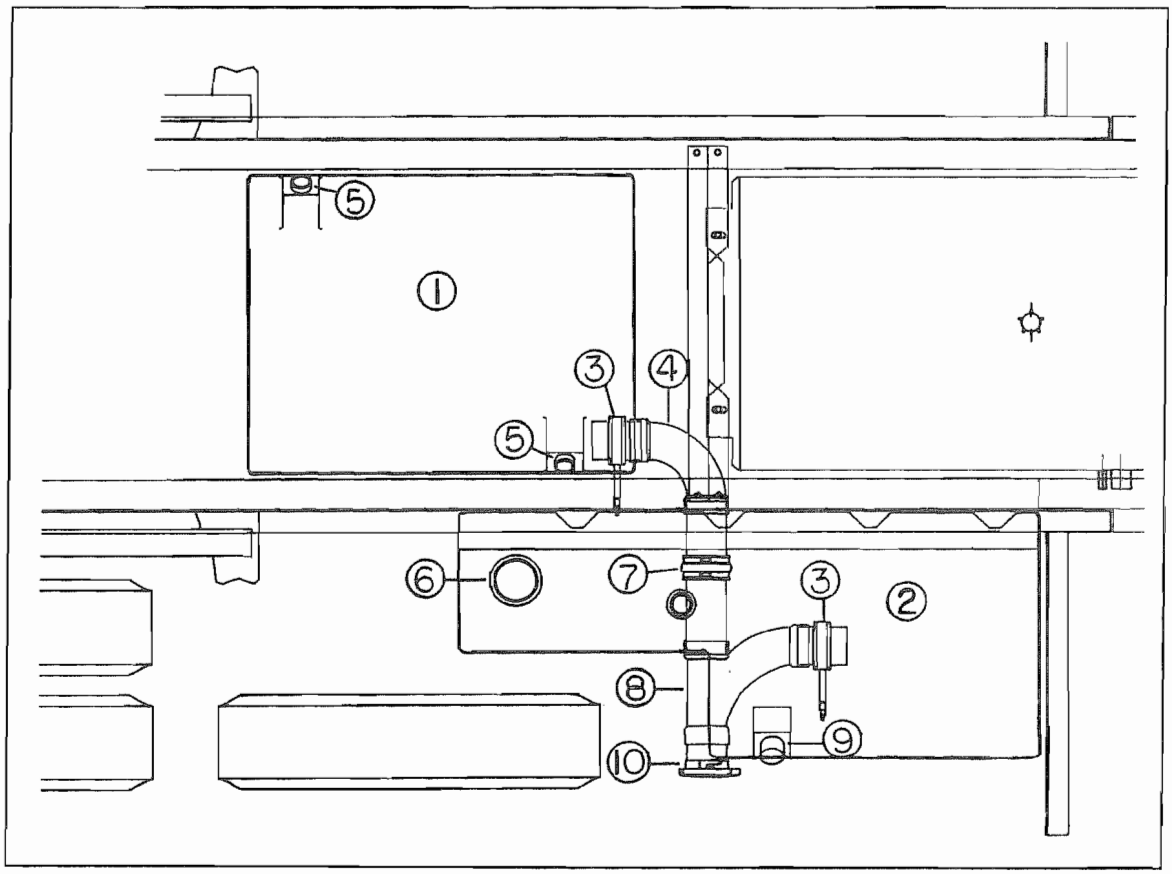
8. New valve may now be glued in place making sure its position allows the mounting bolts to line up with the tank adapter.

Termination Valve Assembly



*Note: If the valve is being rebuilt instead of replaced there's no need to saw it off. Simply rebuild the valve while it's still attached to plumbing line.

DRAIN LINES, BELOW FLOOR



1. Gray holding tank
2. Black holding tank
3. Gate valve, 3"
4. Elbow, long sweep 3"
5. Drain water inlet
6. Toilet flange inlet
7. Caulder coupling, 3"
8. Tee, long sweep, 3"
9. Adapter, vent pipe
10. Outlet

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 all drain valves. One drain valve on all models is located on the water heater exterior and is accessible through the water heater access door.

   On rear double bed models three additional valves are located under the bed. One for hot lines - one for cold lines and the third for draining the water tank.

   On rear twin bed models these same valves are located under the curbside rear twin bed.

   If you motorhome is equipped with the optional ice maker, there will be an additional drain valve in the forward portion of the vehicle. The valve is found by opening the forward drawer under the lounge behind the drivers seat.
4. The toilet water valve should be left in open position while draining water. It is located in the lavatory cabinet. Remove the toilet drain plug, the water line and screen. (See diagram under TOILET section of this manual.) Then depress flush lever until all water drains from the system.
5. While the water is draining from the system depress hand spray thumb button on the telephone shower head and drain all the water. Unscrew the head on spray unit and store.
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. If the period of storage is for 30 days or less you may turn off the "kill" switch rather than remove the batteries.

CAUTION: Make sure you turn the kill switch on prior to operating any appliances or accessories in the motorhome.

Please refer to the battery section for more information on battery maintenance.

11. **With Optional Ice Maker**

    A. After the water system in the motorhome has been drained, disconnect the water line where it enters the solenoid valve in the unit compartment. Allow the machine to run for one hour so that all water is drained.

    B. Leave disconnected until re-using.

    C. Mop out any remaining water in the Ice Maker mold.

    D. Leave door propped open two inches so that humidity will not build up inside the cabinet and corrode the microswitches.

12. Remove any items (food, cosmetics, etc.) from the interior that might be damaged by freezing, or might damage the motorhome if containers break.

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

1. Reconnect all lines except the hose to the pump inlet port. Close all drain valves (See Step 3).

*2. Turn bypass valves to bypass position. Access to the bypass valve in the 36 foot model is in the bottom of the wardrobe just forward of the bathroom. The 30 and 33 foot models access in under the galley.

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.

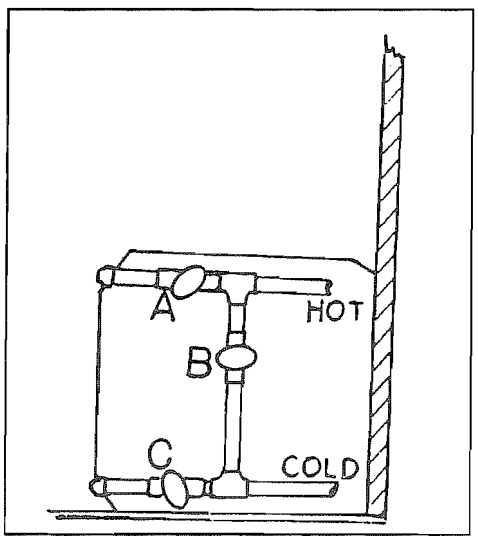
5. Open all water faucets.

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 and the water heater. 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).



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.

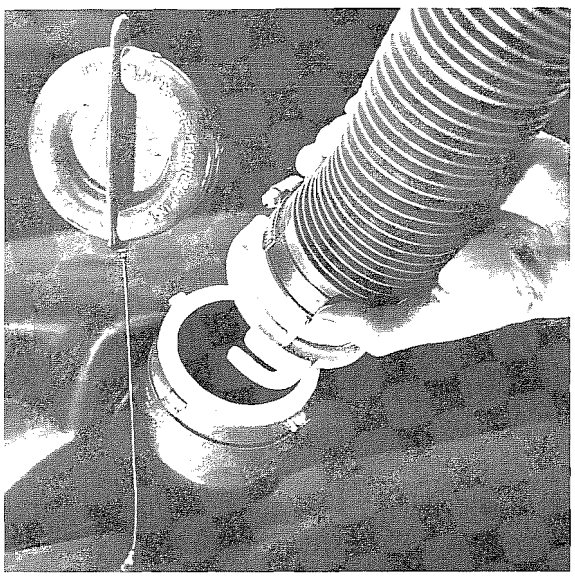
Monitor Panel

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 on the lower rear roadside corner of the motorhome. 32 foot basement models have the outlet behind the utility compartment door and the hose is routed out the bottom. 36 foot models have the outlet extended just below the body as shown in the illustration. 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.

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

Sewage Outlet



When Parked and Connected to Sewer Outlet

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

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

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

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

Black Tank Flush

On the left rear lower side is a water hose connector marked "black tank flush". To use, hook up a hose and turn on full force. Within the tank a sprayhead with a multiple holed head will spray the interior surface of the tank.

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

Drain Systems Cleaning

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

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

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

NOTES

ELECTRICAL SYSTEM

12 VOLT SYSTEM

BATTERIES

Your Airstream Land Yacht motorhome is equipped with three batteries; an engine battery and two coach batteries.

Engine Battery

The engine battery is used for starting the engine and operating the headlights, taillights, running lights, instrument panel lighting, automotive air conditioning and other accessories. The engine battery is charged by the alternator while driving.

Coach Batteries

The coach batteries, located in the stepwell, 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.

An inverter is available as an option, and is used to convert the 12 volt power to 120 volts. This allows most small appliances to be operated for a short time until the generator is started or the motorhome is plugged into city power.

Interior Lights

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

There are two main clusters of light switches. 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.

The second cluster of switches is in the bathroom. They control the **bath lights, ceiling vent, water heater** and **water pump.**

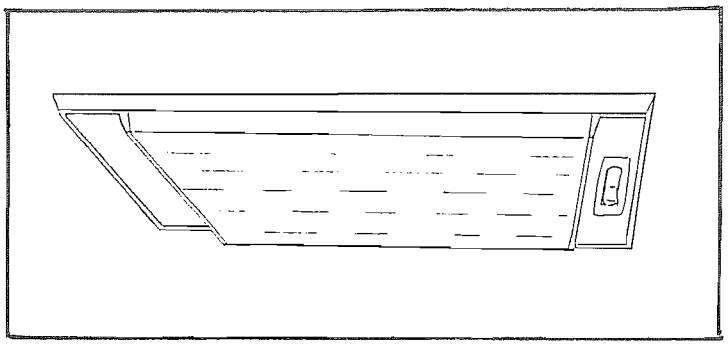
The **ceiling fan switch** will raise and lower the vent cover and turn the fan on or off. The **water pump switch** operates in conjunction with the pump switch on the monitor panel. The pump can be turned on or off at either location.

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 lens 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 either direction.



12 Volt Operation

In the step well of the motorhome is the master or "kill" switch. When this switch is on your 12 volt system is all functional.

The only thing you have to do is make sure the two auxiliary batteries just behind the step 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 your 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 batteries total 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 its much easier on batteries if you'll go ahead and start the engine or generator before the batteries run down.

There are three sets of fuses in your motorhome. The main interior circuits are in the 12 volt distribution panel at the bottom of your galley panel. The brightly colored fuses pull straight out from the face of the panel. Replacement fuses are available at automotive stores and most service stations.

The second set of fuses is the Airstream Automotive accessory fuses located under the left side of the dash. These provide power to equipment like the step, spot light, power seats, etc.

On the panel covering the fuses is a diagram showing the function of each fuse or circuit breaker.

The third set of fuses is Chevrolet fuses to the left of the steering column. The function of the fuses are marked directly on the face of the fuse block. See your Chevrolet Drivers Manual for further information.

Basic 12V Wiring

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

The Airstream Automotive fuse blocks shown in the upper right corner of the drawing are located under the left side of the dash in the motorhome. The notes in the lower left of the drawing show the use of each wire and the amperage of the fuse or breaker used on that particular circuit. It should be noted fuse block "A" only has power when the ignition is "on". Fuse block "B" has constant power - circuits 1, 2 and 3 from the engine battery and 4 through 9

from the auxiliary batteries unless the kill switch is turned off.

The "kill" switch shown in the lower center of the drawing is located in the step well of your motorhome. It is intended to be used for long term storage. If you're not going to use your motorhome for a week or two just leave the switch on. If it's going to be more than a couple of weeks before using your coach turn the switch off. 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.

The invertor, convertor and 110V/12V distribution panel are all located under the galley counter. A switch to turn the optional invertor on is located in the galley cabinet.

The invertor takes 12V battery power and steps is up to 110 volts. When your not plugged ito citypower and don't have the generator running you can turn the invertor on and have 110 volt power in the bathroom and galley area that has sufficient power (about 600 watts) to operate small appliances like a shaver or mixer.

This is a great convenience if it's not abused.

When operating the inverter portion you must be aware of the tremendous loads put on your batteries. This is probably best shown by a little ninth grade science. If you have a shaver that uses 500 watts, here is what the figures look like:

120 Volt (Plugged In)	12 Volt (Battery Power)
$\frac{500 \text{ Watts}}{120 \text{ Volt}} = 4.1 \text{ AMP}$	$\frac{500 \text{ Watts}}{12 \text{ Volt}} = 41 \text{ AMP}$

Your two coach batteries are rated around a total of 210 amp hours. As you can see from the formula above, after about three hours there is not going to be a lot of battery power left.

A little common sense will make the system useful. But, if you try to over do it you will soon have dead batteries.

In the center left of the 12V wiring drawing is four automatic circuit breakers. Directly below the illustration of the breaker is the description of each circuit. These breakers are directly behind the batteries and access is from underneath.

On the lower right side of the drawing is the power distribution block, auxiliary start solenoid, isolator and automotive accessory solenoid. These are all located under the hood.

The power distribution block is simply a junction block allowing a secure connection between large O gauge wires.

The auxilary start solenoid is your built in battery jumper. If your engine battery is low you can press the auxiliary start switch on the dash and the solenoid will close tying all three batteries into the start circuit.

The isolator keeps your two battery systems seperated when you are parked. This way if you leave some interior lights on you won't run down your engine battery. When the engine is started power form the alternator is fed through the isolator to both the engine and auxilary batteries.

The accessory solenoid provides power to Airstream Automotive Fuse Block A when the ignition key is on.

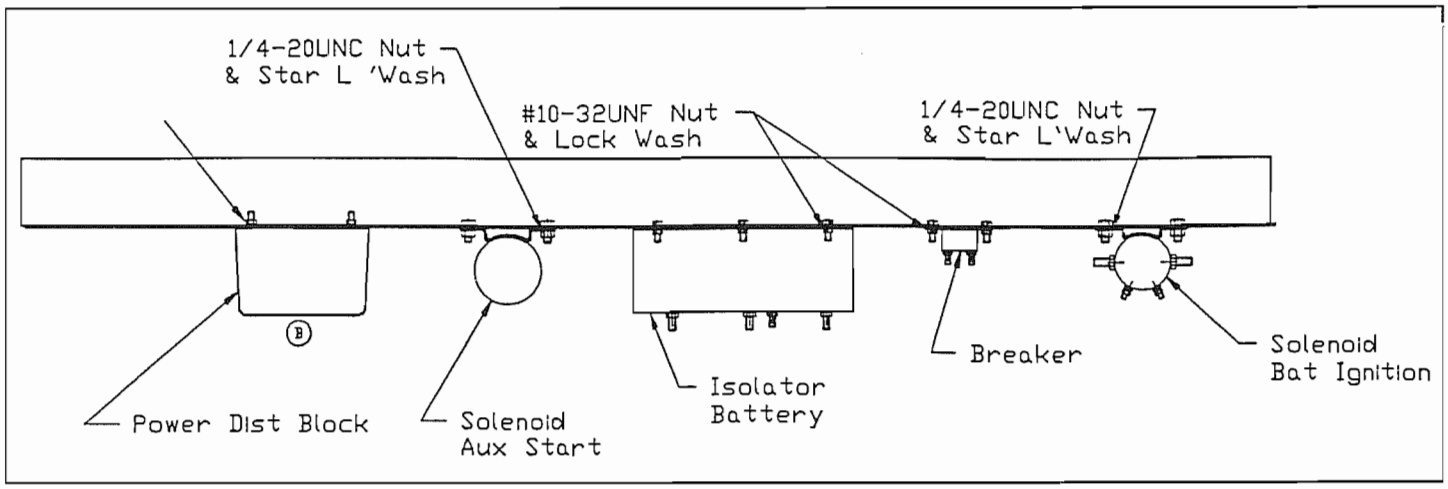
NOTES

12V WIRING DIAGRAMS

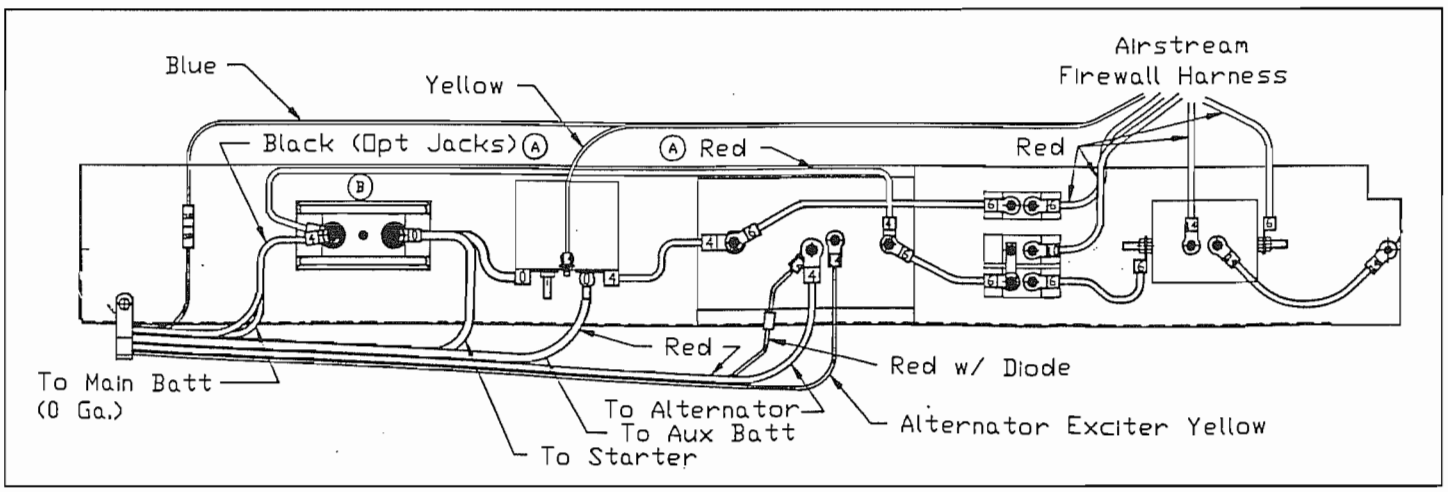
- Under hood
- Firewall harness
- Driving and corner lamp harness
- Head light and turn signal harness
- Drivers door harnesses
- "A" pillar harness
- Upper body harness
- Taillight harness
- Roadside chassis harness 30, 33, and 36 foot
- Curbside chassis harness 33 and 36 foot
- Compartment/docking light harness
- Interior harness 33 and 36 foot
- Interior harness 30 foot
- Ceiling harness 36 foot
- Ceiling harness 33 foot
- Ceiling harness 30 foot
- Electric mirrors

UNDER HOOD WIRING

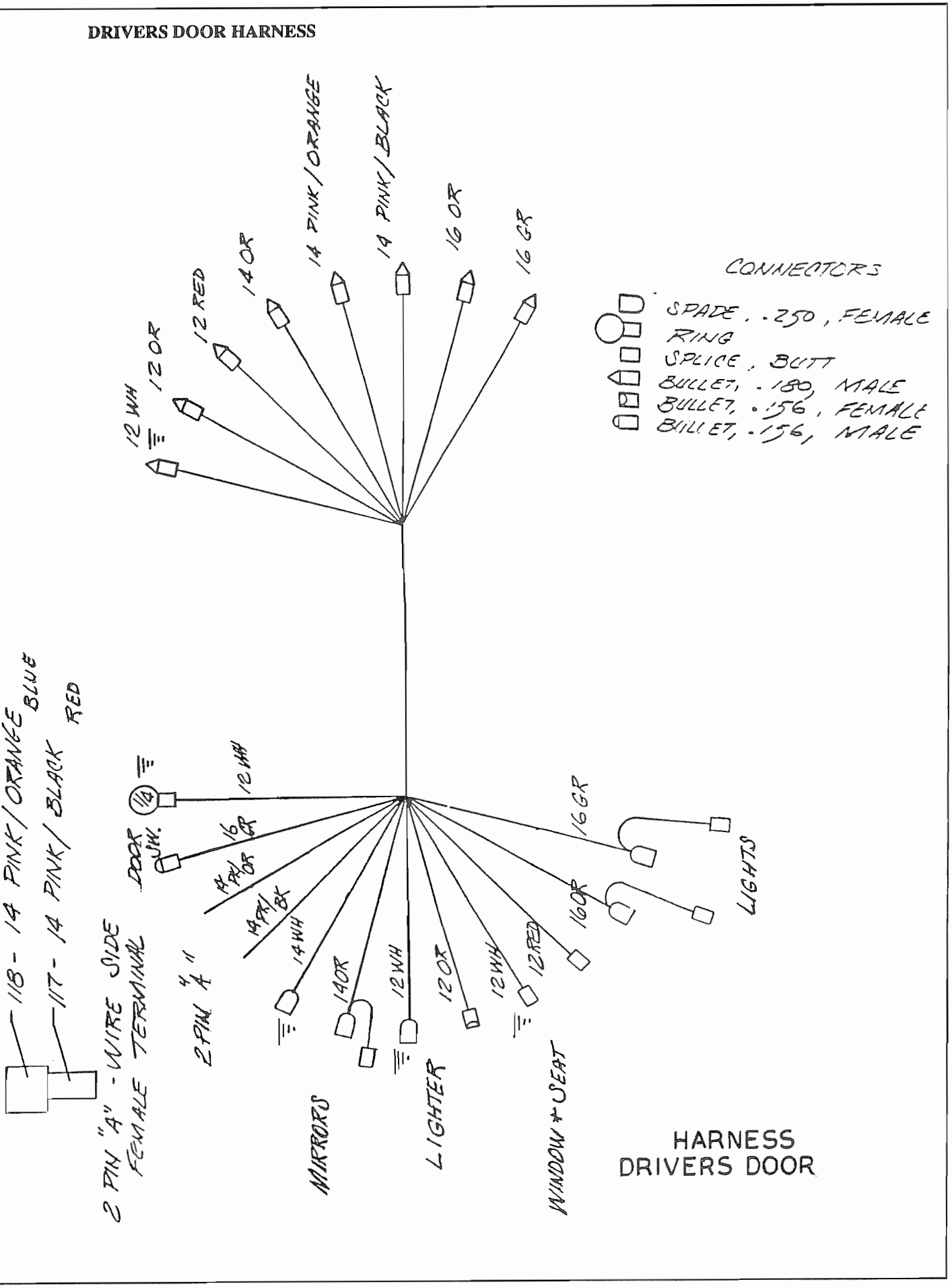
Components - top view



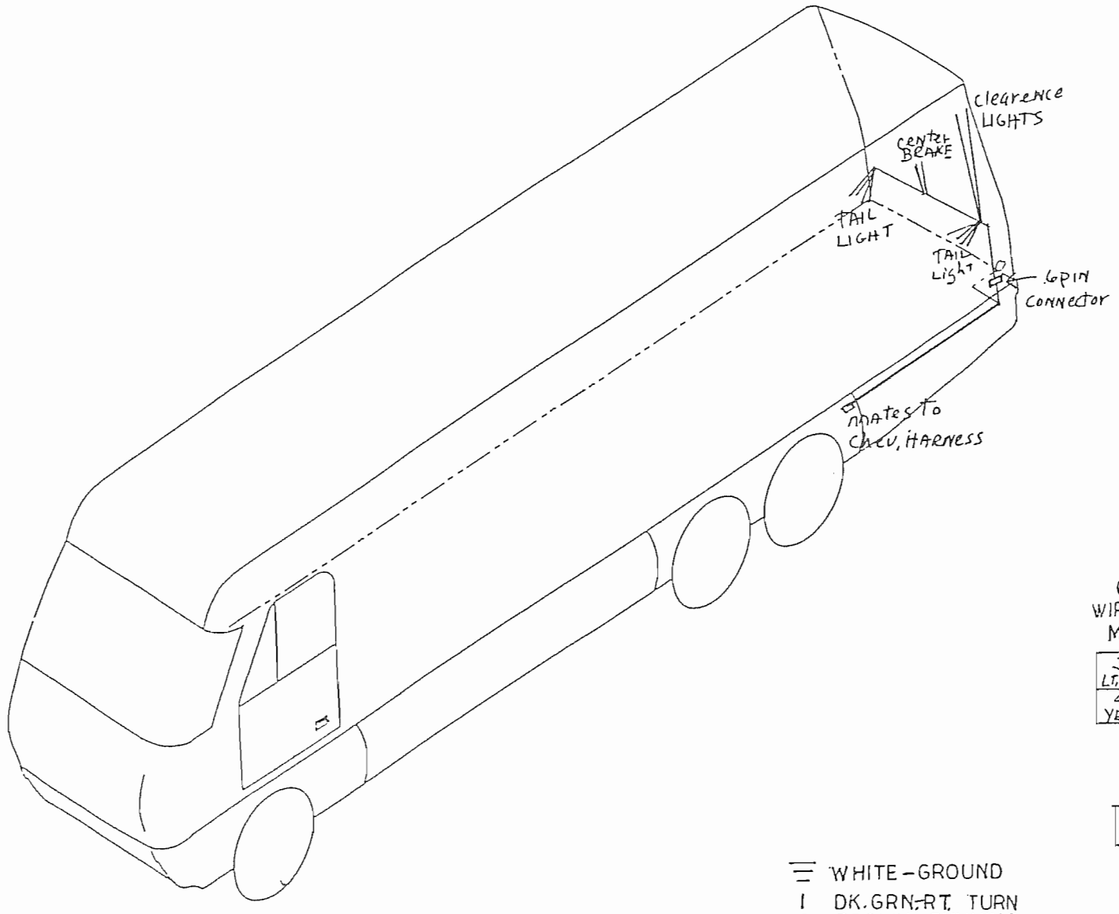
Wiring - front view

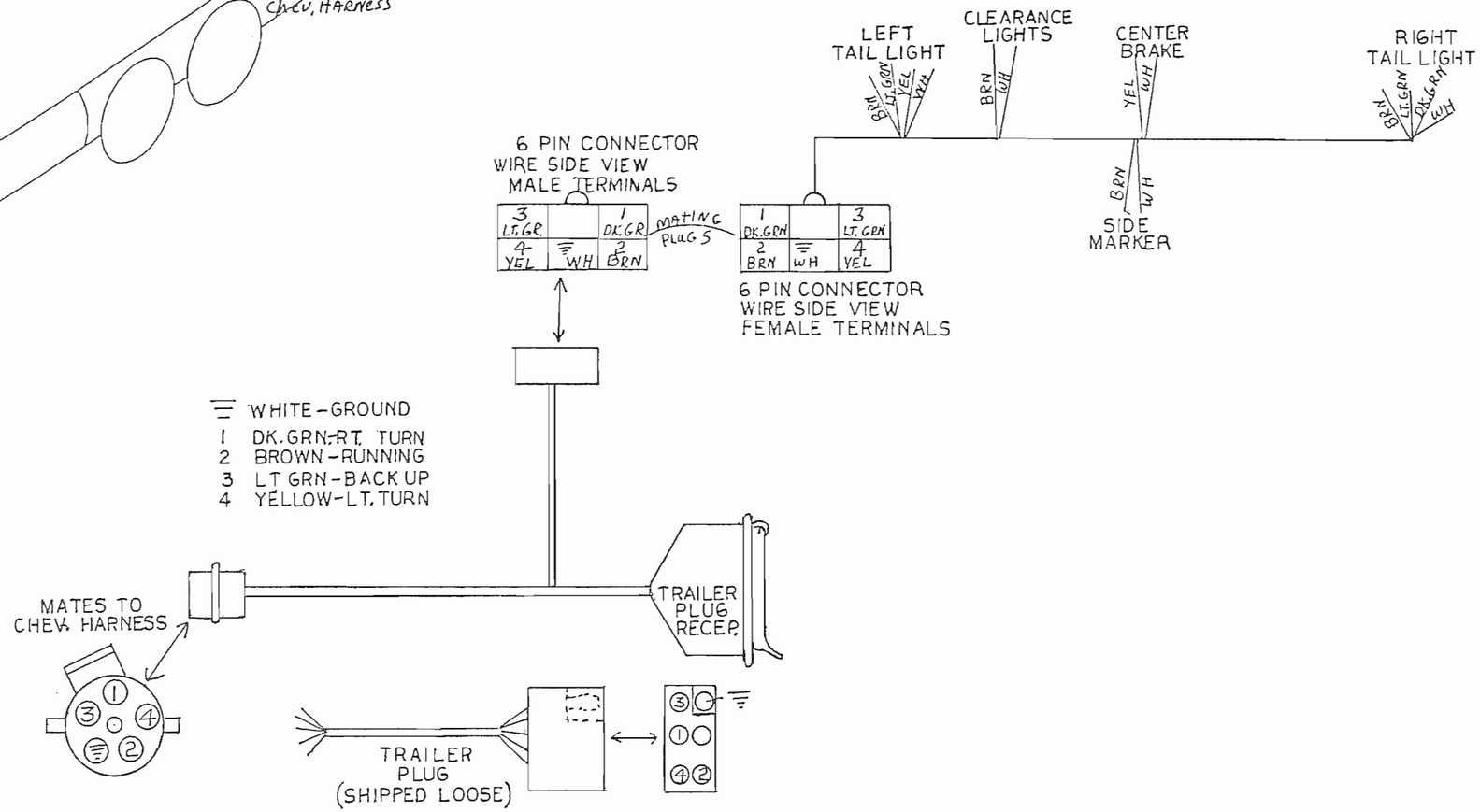


DRIVERS DOOR HARNESS



NOTES

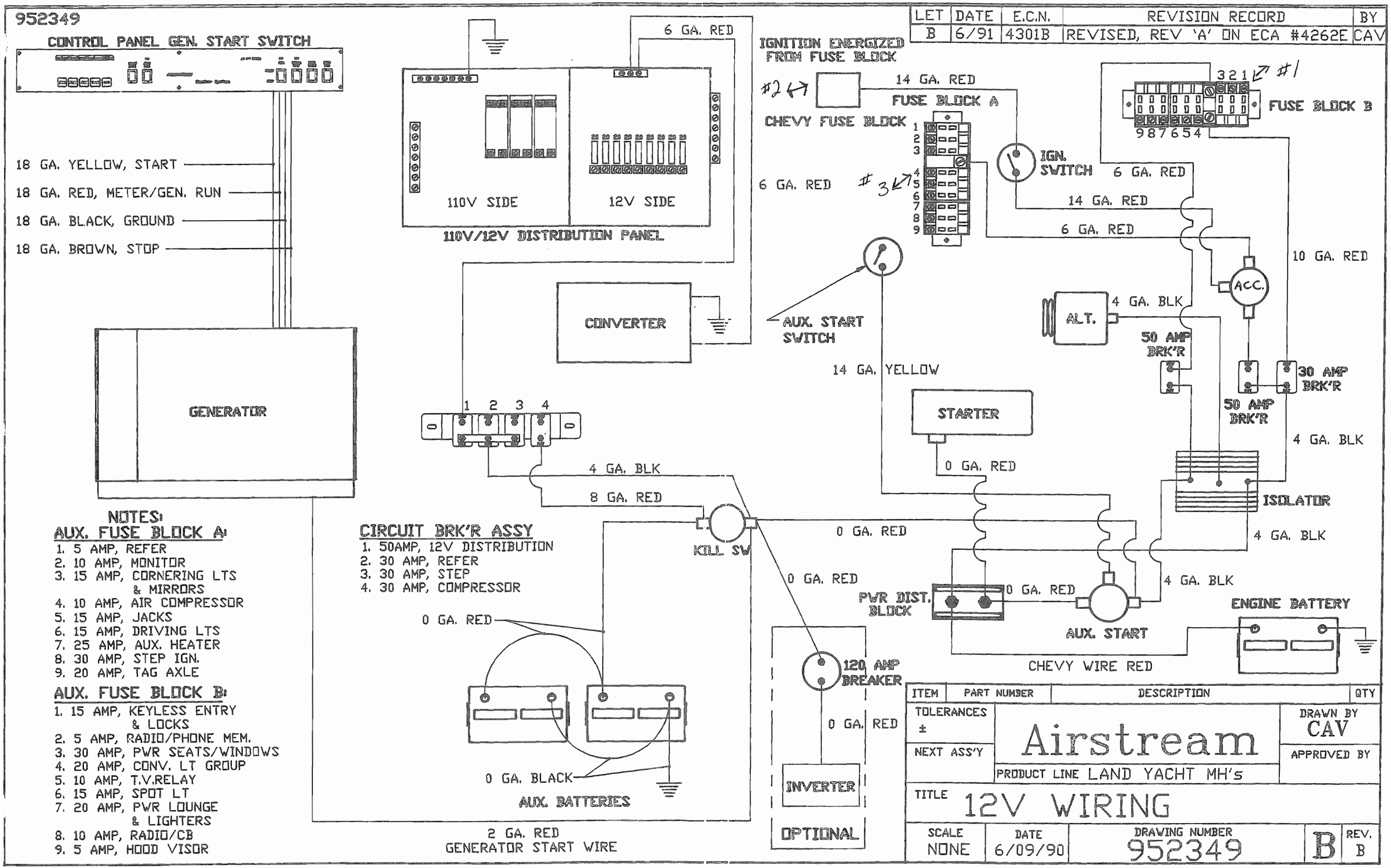




HARNESS TAIL LIGHT

952349

LET	DATE	E.C.N.	REVISION RECORD	BY
B	6/91	4301B	REVISED, REV 'A' ON ECA #4262E	CAV



NOTES:

AUX. FUSE BLOCK A:

1. 5 AMP, REFER
2. 10 AMP, MONITOR
3. 15 AMP, CORNERING LTS & MIRRORS
4. 10 AMP, AIR COMPRESSOR
5. 15 AMP, JACKS
6. 15 AMP, DRIVING LTS
7. 25 AMP, AUX. HEATER
8. 30 AMP, STEP IGN.
9. 20 AMP, TAG AXLE

AUX. FUSE BLOCK B:

1. 15 AMP, KEYLESS ENTRY & LOCKS
2. 5 AMP, RADIO/PHONE MEM.
3. 30 AMP, PWR SEATS/WINDOWS
4. 20 AMP, CONV. LT GROUP
5. 10 AMP, T.V.RELAY
6. 15 AMP, SPOT LT
7. 20 AMP, PWR LOUNGE & LIGHTERS
8. 10 AMP, RADIO/CB
9. 5 AMP, HOOD VISOR

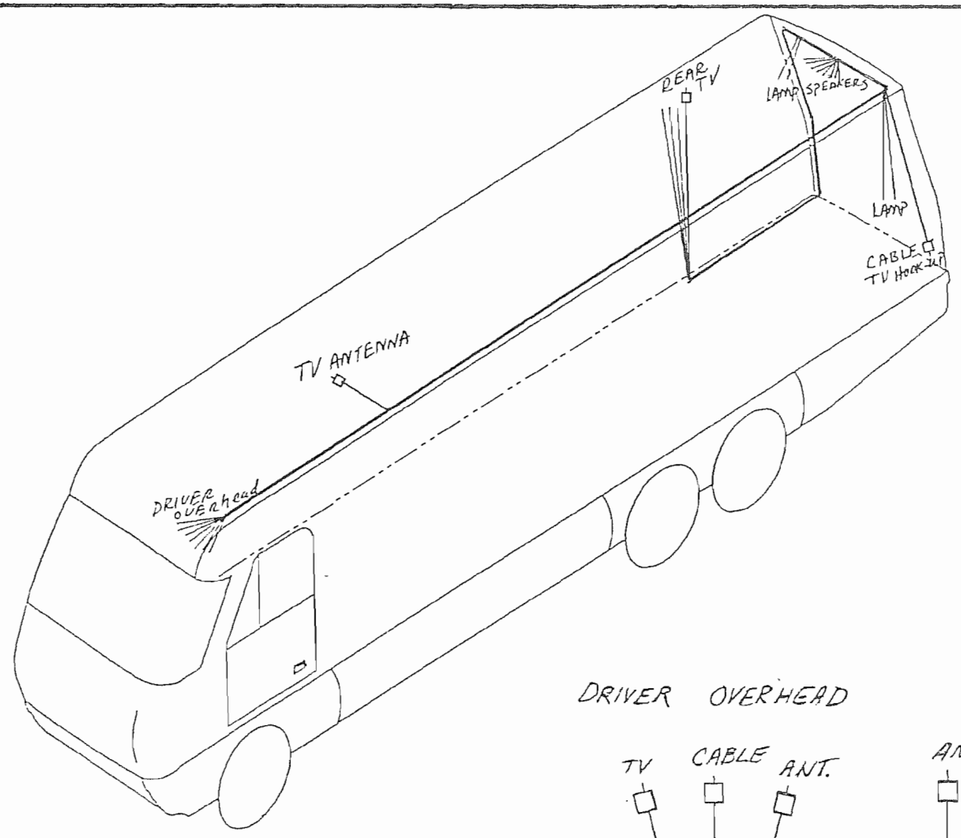
CIRCUIT BRK'R ASSY

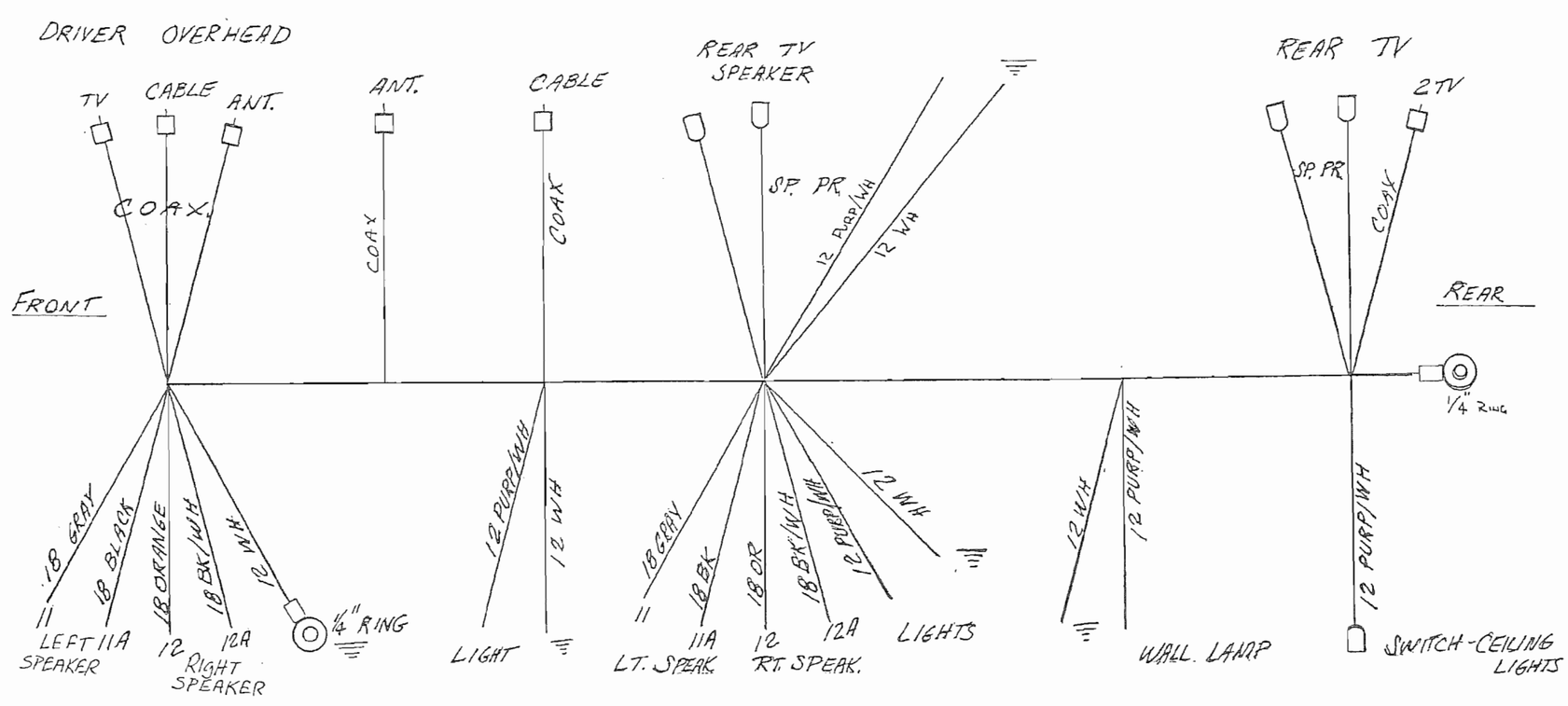
1. 50AMP, 12V DISTRIBUTION
2. 30 AMP, REFER
3. 30 AMP, STEP
4. 30 AMP, COMPRESSOR

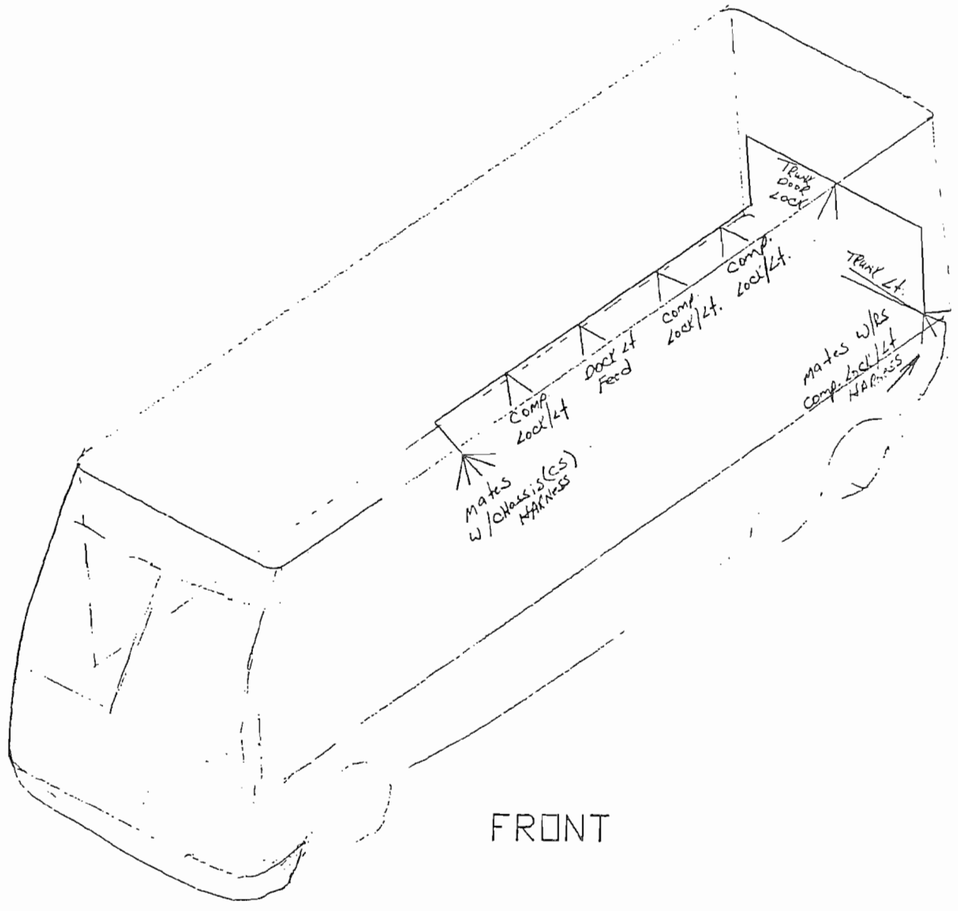
ITEM	PART NUMBER	DESCRIPTION	QTY

TOLERANCES ±	Airstream		DRAWN BY CAV
NEXT ASS'Y	PRODUCT LINE LAND YACHT MH's		APPROVED BY
TITLE 12V WIRING			
SCALE NONE	DATE 6/09/90	DRAWING NUMBER 952349	B REV. B

HARNESS
UPPER BODY







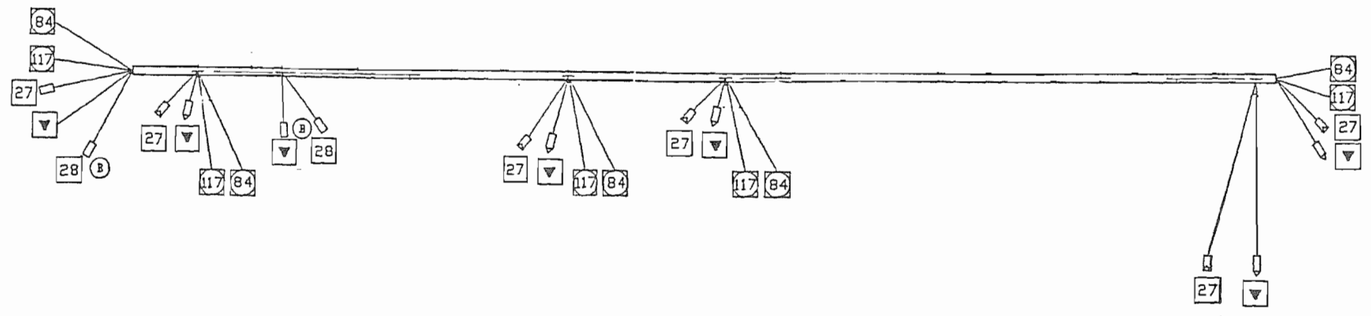
FRONT

Terminals
Bullet .180 Male
Bullet .180 Female
Butt Connector
Ring Miniature
Spade .250 Female

= 20 Ga Wire
= 18 Ga Wire
= 16 Ga Wire
=14 Ga Wire
= 12 Ga Wire
= 10 Ga Wire
= 8 Ga Wire

NO.	COLOR	FUNCTION
84	Purple/Yellow	Comp't Lock
117	Pink/Black	Comp't Lock
27	Black/White	Comp't Lt. Feed
	White	Ground
28	Purple	Dock Lt Feed

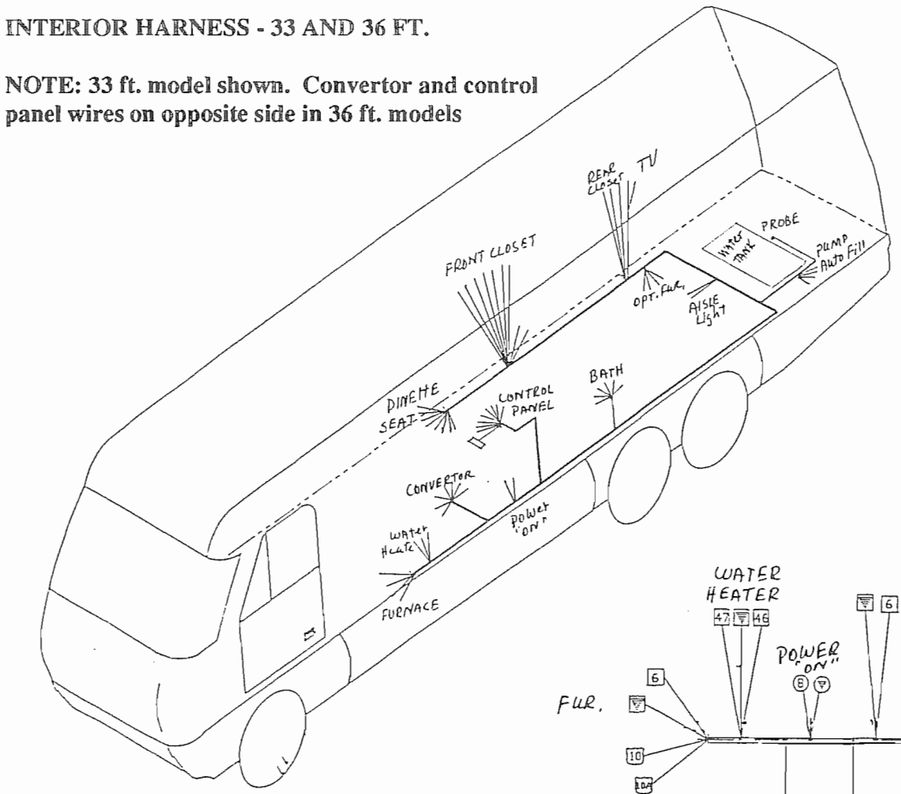
REAR



COMPARTMENT/DOCKING LIGHT
HARNESS 33+36FT

INTERIOR HARNESS - 33 AND 36 FT.

NOTE: 33 ft. model shown. Convertor and control panel wires on opposite side in 36 ft. models

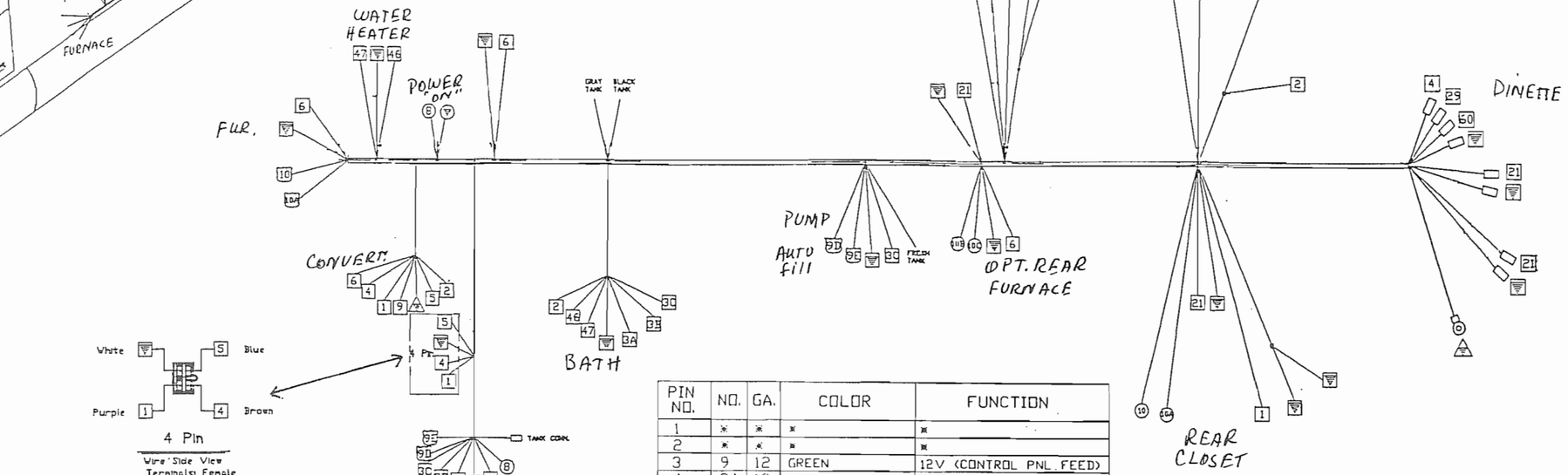


= 20 Ga Wire
= 18 Ga Wire
= 16 Ga Wire
=14 Ga Wire
= 12 Ga Wire
= 10 Ga Wire
= 8 Ga Wire

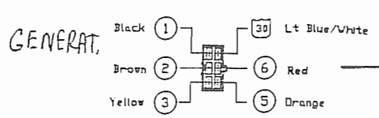
Terminals

- Bullet .180 Male
- Bullet .180 Female
- Butt Connector
- Ring Miniature
- Spade .250 Female

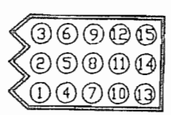
NO.	GA.	COLOR	FUNCTION
1	12	Purple	Power Feed
2	12	Yellow	Power Feed
3A	12	Orange	Water Pump
3B	12	Orange	Water Pump
3C	12	Orange/White	Water Pump
4	12	Brown	Power Feed
5	12	Blue	Power Feed
6	12	Red	Power Feed
8	18	Yellow	Power On
9	12	Green	Power Feed
9D	20	Orange/Yellow	Auto Fill
9E	20	Blue/Yellow	Auto Fill
10	18	Blue/White	Fnt Furnace Thermo
10A	18	Blue/White	Fnt Furnace Thermo
10B	18	Blue/White	Rear Furn Thermo
10C	18	Blue/White	Rear Furn Thermo
21	12	Green/White	Walkway Lights
29	12	Brown/White	Patio & Grab Handle
46	12	Brown	Water Heater
47	12	Light Blue	Water Heater
60	12	Black/White	Ceiling Lights
	8	White	Ground
	12	White	Ground
	18	White	Ground
BT	18	Brown	Black Tank
GT	18	Green	Gray Tank
WT	18	Red	Water Tank
AF	18	Gray	Auto Fill Sensor



4 Pin
Wire Side View
Terminals: Female



6 Pin
Wire Side View
Terminals: Female

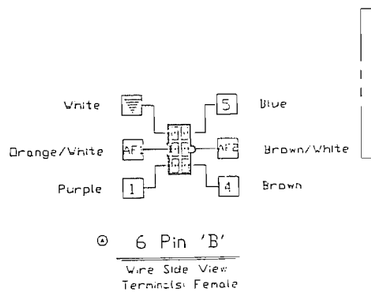


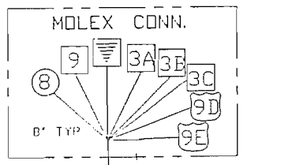
CONTROL PANEL

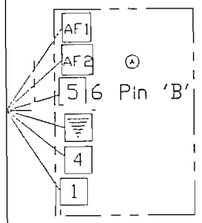
PIN NO.	NO.	GA.	COLOR	FUNCTION
1	*	*	*	*
2	*	*	*	*
3	9	12	GREEN	12V (CONTROL PNL. FEED)
4	3A	12	ORANGE	WATER PUMP SWITCH
5	WT	18	RED	FRESH WATER TANK
6	3C	12	ORANGE/WHITE	PUMP LIGHT
7	9D	20	ORANGE/YELLOW	AUTO FILL SOLENOID
8	GT	18	GREEN	GRAY TANK
9	AF	18	GRAY	AUTO FILL SENSOR
10	9E	20	BLUE/YELLOW	AUTO FILL SOLENOID
11	BT	18	BROWN	BLACK TANK
12		12	WHITE	GROUND
13	8	18	YELLOW	POWER ON LIGHT
14	3B	18	ORANGE	WATER PUMP SWITCH
15	*	*	*	*

INTERIOR HARNESS
33 & 36FT.

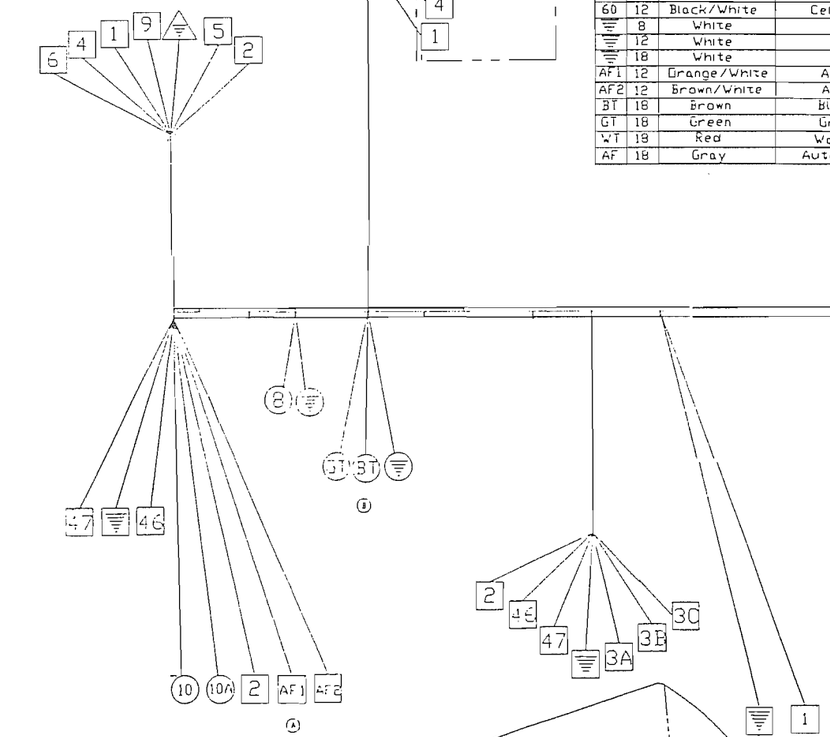
INTERIOR HARNESS 30FT.

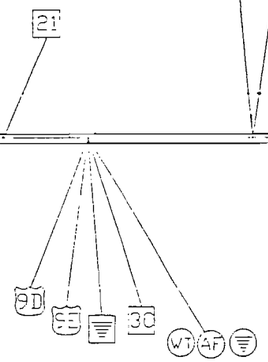


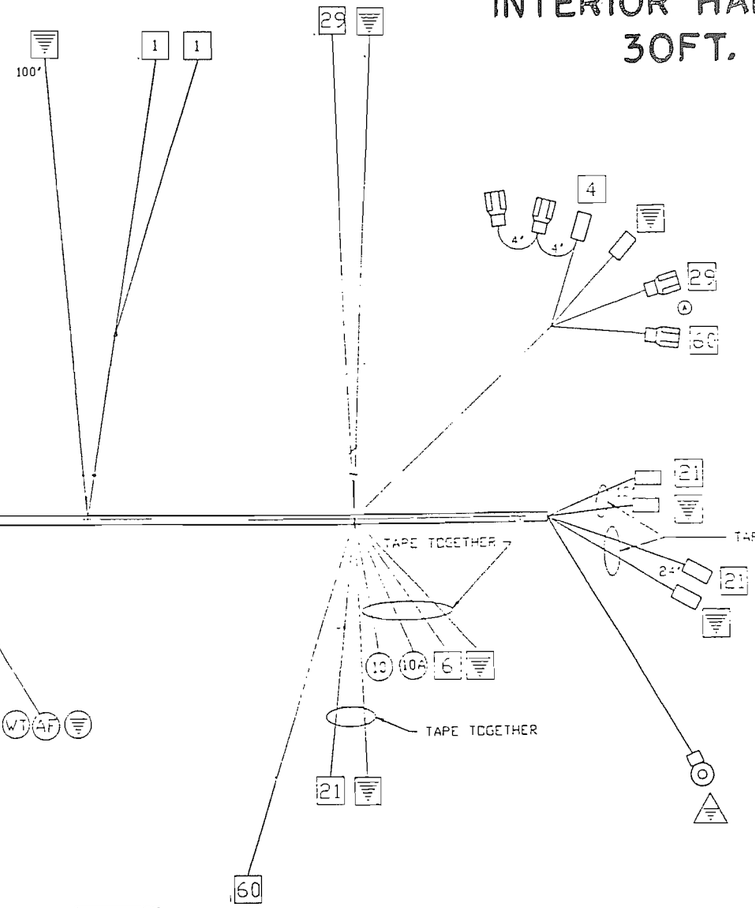


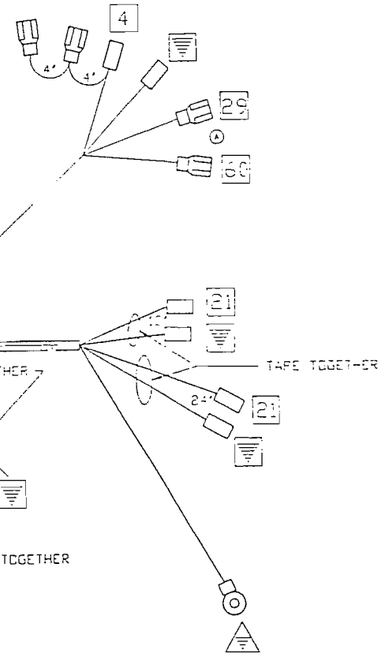


NO.	GA.	COLOR	FUNCTION
1	12	Purple	Power Feed
2	12	Yellow	Power Feed
3A	12	Orange	Water Pump
3B	12	Orange	Water Pump
3C	12	Orange/White	Water Pump
4	12	Brown	Power Feed
5	12	Blue	Power Feed
6	12	Red	Power Feed
8	18	Yellow	Power On
9	12	Green	Power Feed
9D	20	Orange/Yellow	Auto Fill
9E	20	Blue/Yelow	Auto Fill
10	18	Blue/White	Fnt Furnace Thermo
10A	18	Blue/White	Fnt Furnace Thermo
21	12	Green/White	Walkway Lights
29	12	Brown/White	Patio & Grab Handle
46	12	Brown	Water Heater
47	12	Light Blue	Water Heater
60	12	Black/White	Ceiling Lights
⏚	8	White	Ground
⏚	12	White	Ground
⏚	18	White	Ground
AF1	12	Orange/White	Attic Fan
AF2	12	Brown/White	Attic Fan
BT	18	Brown	Black Tank
GT	18	Green	Gray Tank
WT	18	Red	Water Tank
AF	18	Gray	Auto.Fill Sensor







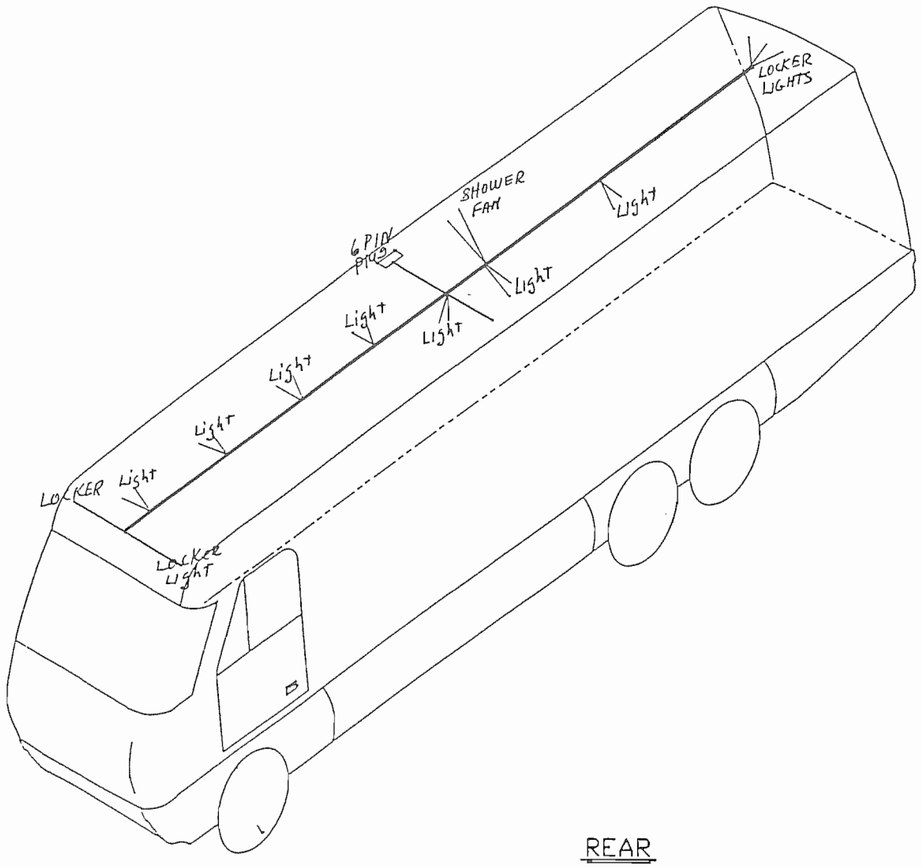


MOLEX SERIES No. 1375
RECEPTACLE ORDER No. 03-09-1151
MATING SIDE OF RECEPTACLE SHOWN

PIN NO.	NO.	GA.	COLOR	FUNCTION
1	*	*	*	*
2	*	*	*	*
3	9	12	GREEN	12V (CONTROL PNL FEED)
4	3A	12	ORANGE	WATER PUMP SWITCH
5	WT	18	RED	FRESH WATER TANK
6	3C	12	ORANGE/WHITE	PUMP LIGHT
7	9D	20	ORANGE/YELLOW	AUTO FILL SOLENOID
8	GT	18	GREEN	GRAY TANK
9	AF	18	GRAY	AUTO FILL SENSOR
10	9E	20	BLUE/YELLOW	AUTO FILL SOLENOID
11	BT	18	BROWN	BLACK TANK
12	⏚	12	WHITE	GROUND
13	8	18	YELLOW	POWER ON LIGHT
14	3B	18	ORANGE	WATER PUMP SWITCH
15	*	*	*	*

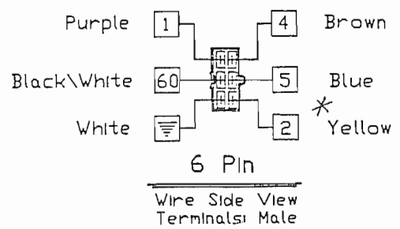
Terminals	
	Bullet .180 Male
	Bullet .180 Female
	Butt Connector
	Ring Miniature
	Spade .250 Female

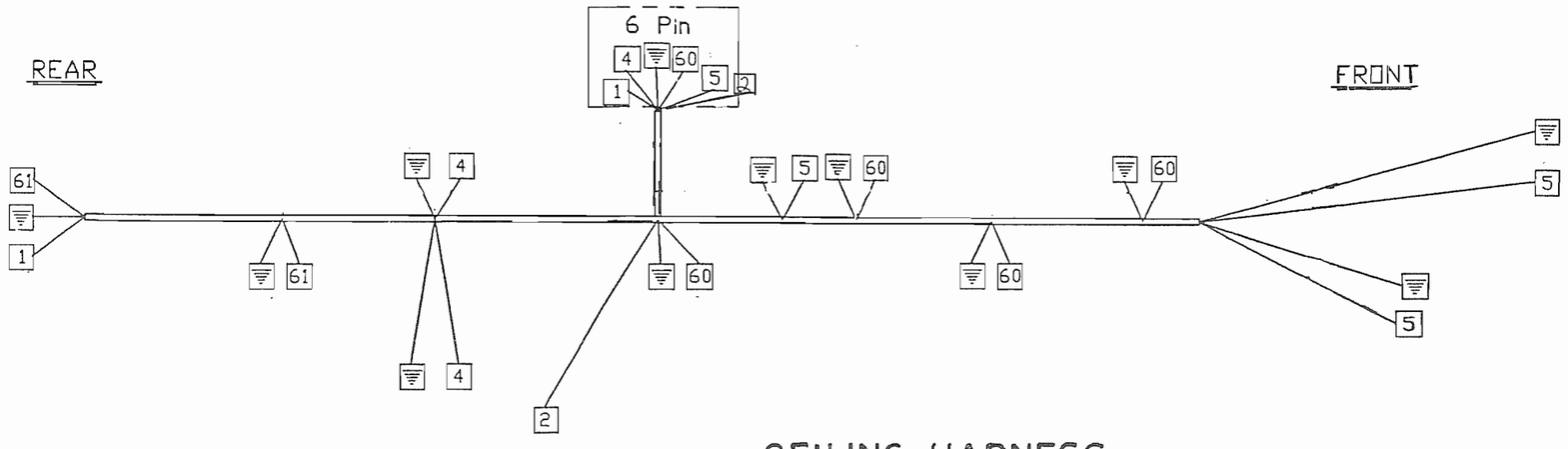
= 20 Ga Wire
=14 Ga Wire
= 18 Ga Wire
= 12 Ga Wire
= 16 Ga Wire
= 10 Ga Wire
= 8 Ga Wire

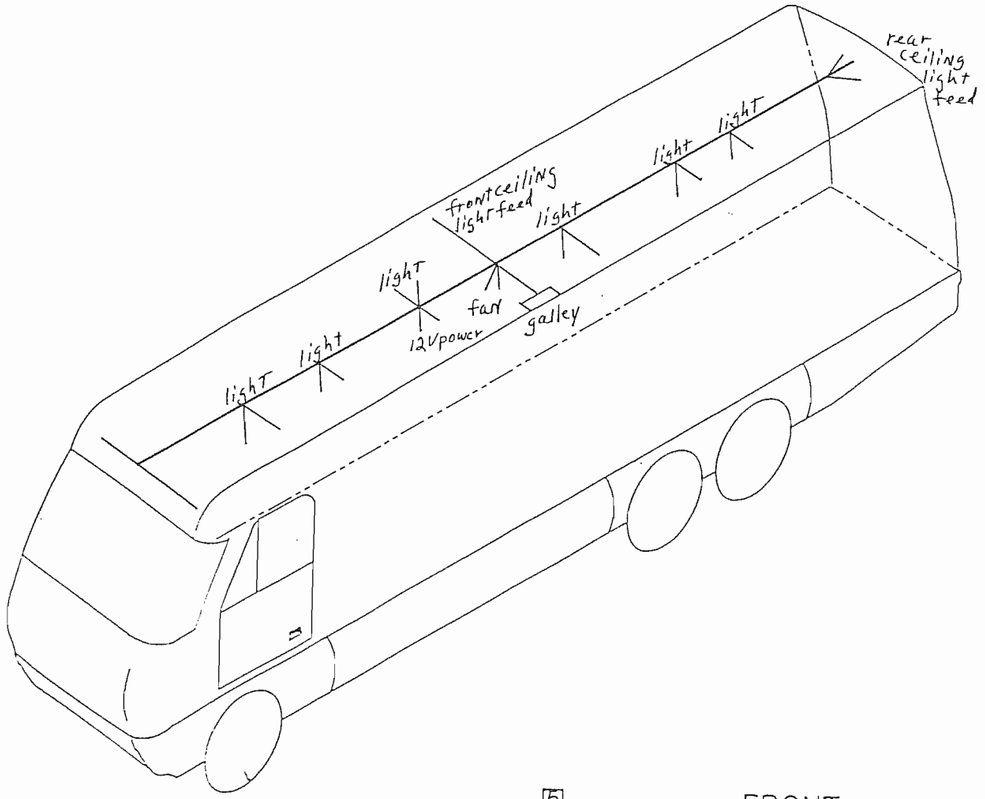


=14 Ga Wire
= 12 Ga Wire
= 18 Ga Wire
= 10 Ga Wire
= 16 Ga Wire
= 8 Ga Wire

NO.	COLOR	FUNCTION
1	Purple	12V Feed
2	Yellow	12V Feed
4	Brown	12V Feed
5	Blue	12V Feed
60	Black\White	Ceiling Lights
61	Purple\White	Ceiling Lights
⏚	White	Ground

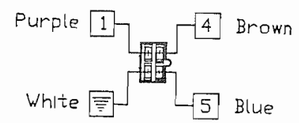




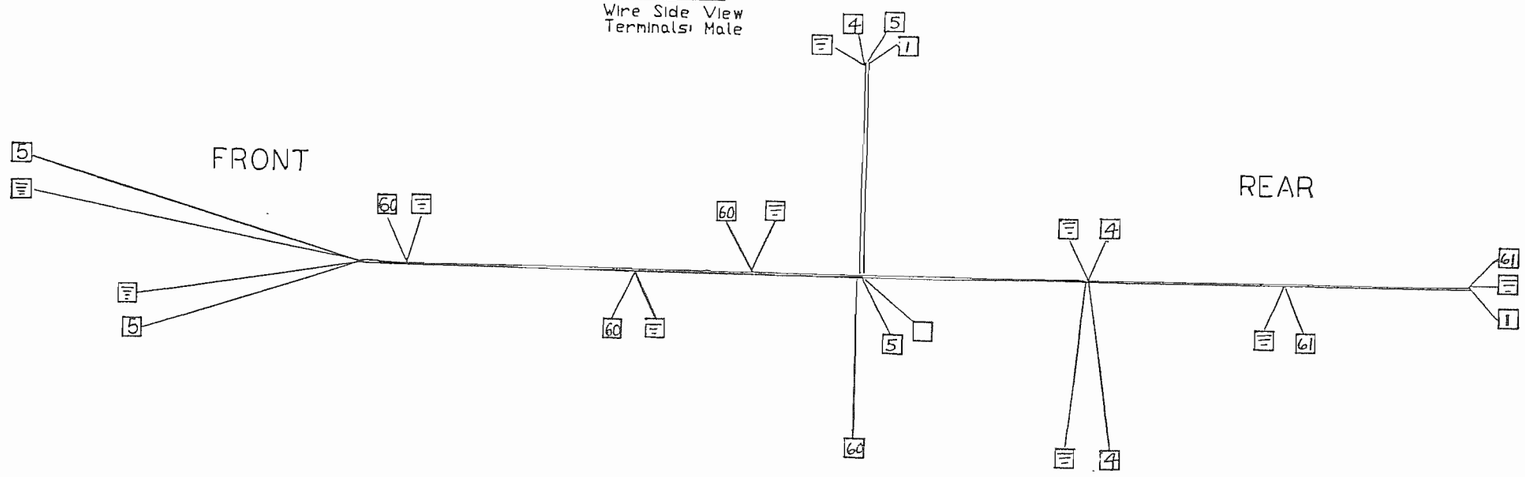


=14 Ga Wire
= 12 Ga Wire
= 18 Ga Wire
= 10 Ga Wire
= 16 Ga Wire
= 8 Ga Wire

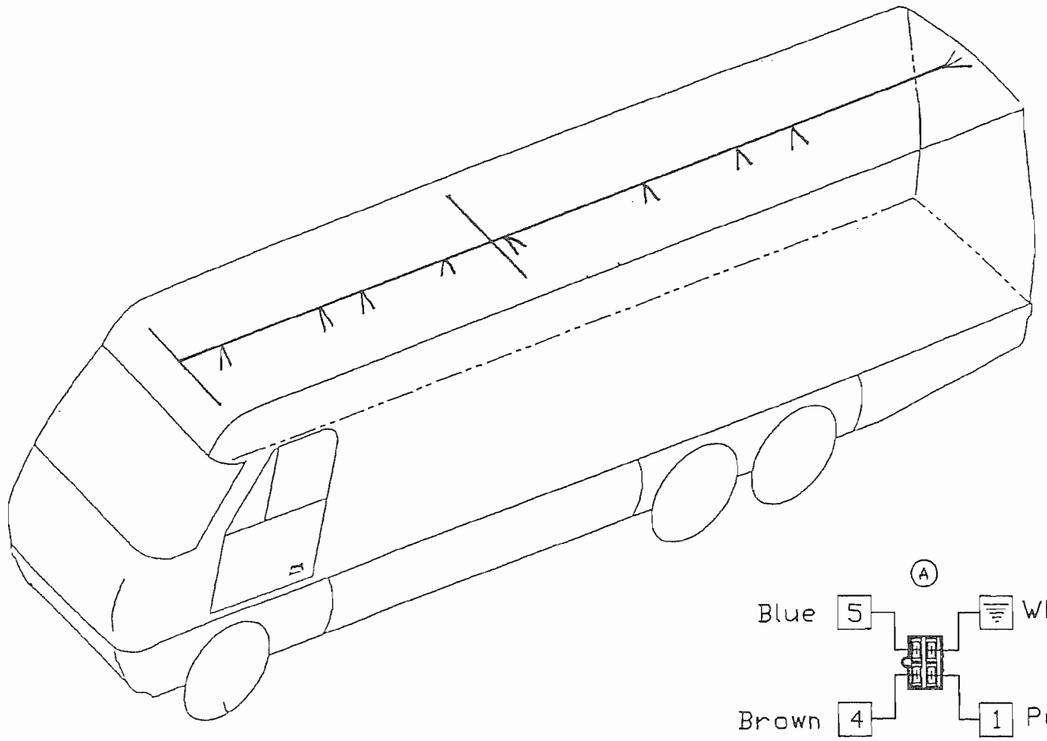
NO.	COLOR	FUNCTION
1	Purple	12V Feed
4	Brown	12V Feed
5	Blue	12V Feed
60	Black\White	Ceiling Lights
61	Purple\White	Rear Ceiling Lts
⏚	White	Ground



4 Pin
Wire Side View
Terminals: Male



CEILING HARNESS
33FT

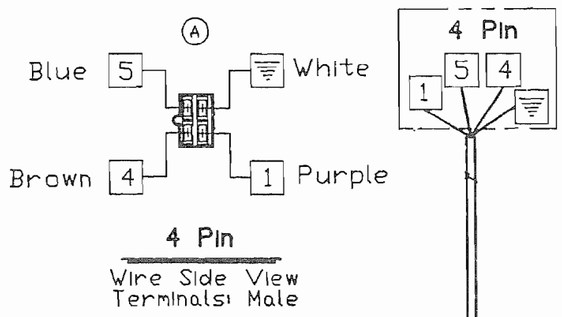


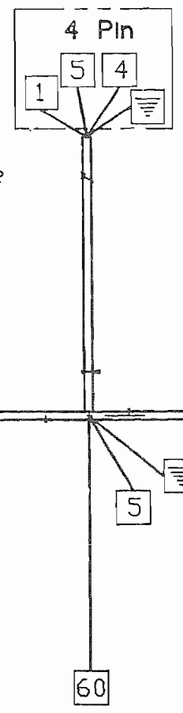
NO.	GA.	COLOR	FUNCTION
1	12	Purple	12V Feed
4	12	Brown	12V Feed
5	12	Blue	12V Feed
60	12	Black\White	Ceiling Lights
61	12	Purple\White	Rear Ceiling Lts
⏚	12	White	Ground

=14 Ga Wire = 12 Ga Wire

= 18 Ga Wire = 10 Ga Wire

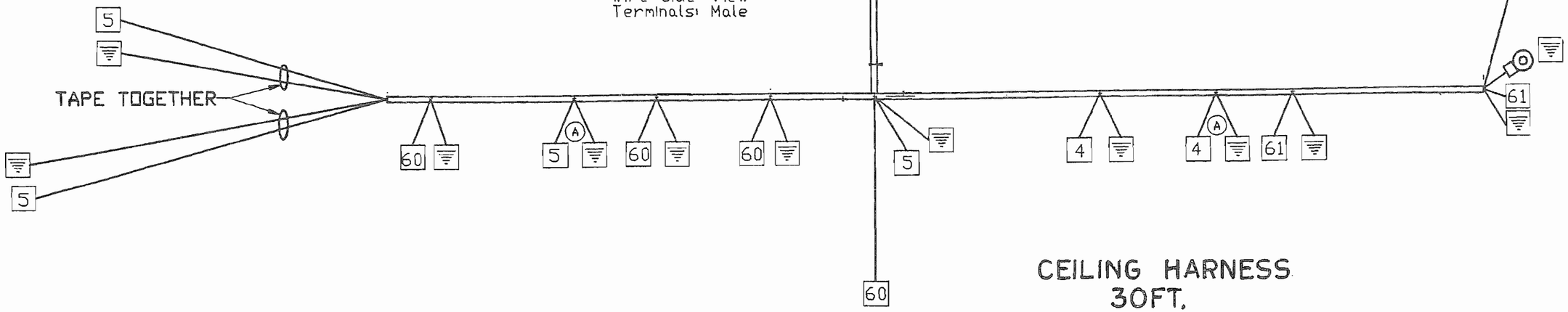
= 16 Ga Wire = 8 Ga Wire



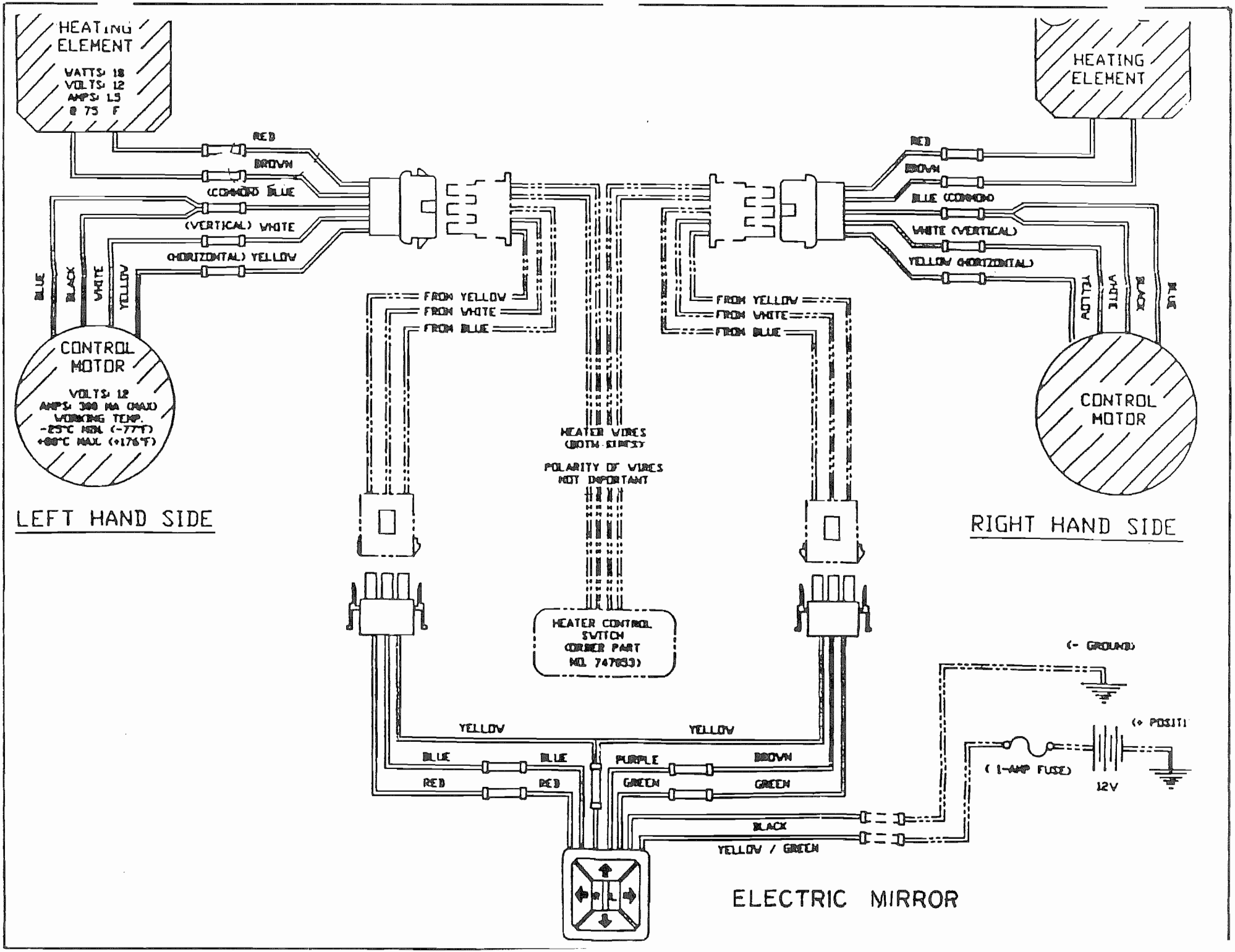


REAR

FRONT



CEILING HARNESS
30FT.


HEATING ELEMENT
WATTS: 18
VOLTS: 12
AMPS: 1.5
@ 75 F
RED
BROWN
(COMMON) BLUE
(VERTICAL) WHITE
(HORIZONTAL) YELLOW
BLUE
BLACK
WHITE
YELLOW
CONTROL MOTOR
VOLTS: 12
AMPS: 300 MA (MAX)
WORKING TEMP.
-25°C MIN. (-77°F)
+88°C MAX. (+176°F)
LEFT HAND SIDE
FROM YELLOW
FROM WHITE
FROM BLUE
HEATER WIRES
(BOTH SIDES)
POLARITY OF WIRES
NOT IMPORTANT
HEATER CONTROL SWITCH
(ORDER PART NO. 747653)
HEATING ELEMENT
RED
BROWN
BLUE (COMMON)
WHITE (VERTICAL)
YELLOW (HORIZONTAL)
YELLOW
WHITE
BLACK
BLUE
CONTROL MOTOR
RIGHT HAND SIDE
FROM YELLOW
FROM WHITE
FROM BLUE
YELLOW
YELLOW
BLUE
BLUE
RED
RED
PURPLE
BROWN
GREEN
GREEN
BLACK
YELLOW / GREEN
(- GROUND)
(+ POSITI
(1-AMP FUSE)
12V
ELECTRIC MIRROR

KEYLESS ENTRY SYSTEM

SERVICE INFORMATION

There are four major electrical components used to operate the keyless entry system.

* Key Pad
* Dash Switch
* Drive Motor
* Control Module

The CONTROL MODULE is the heart of the system. Twelve volt power from the engine battery supplies power to the module, and is distributed by the control to the key pad drive motor and aisle lights.

The control module and the connections shown on the wiring diagram are located under the galley back against the wall.

If any failure occurs the first check is to look for power at the key pad. Does it light when a key pad is depressed? If not, check the engine battery for charge. If it is okay check for 12 volt positive and negative. Perform this check at the red and white wires providing power to the module as shown on the wiring diagram.

Listen! Depress key pads 7/8 and 9/10. Can you hear the drive motor trying to work the plunger?

Does the dash switch work the lock when the key pad doesn't? If this is the case depress each key pad button one at a time. Pause long enough for the light illuminating the pad to go out between each test. Did each pad make contact indicated by the light being activated?

The dash switch is a simple grounding device. Grounding either wire going to the switch should extend or retract the lock plunger.

CAUTION: Do not ground both wires simultaneously to prevent damage to the control module.

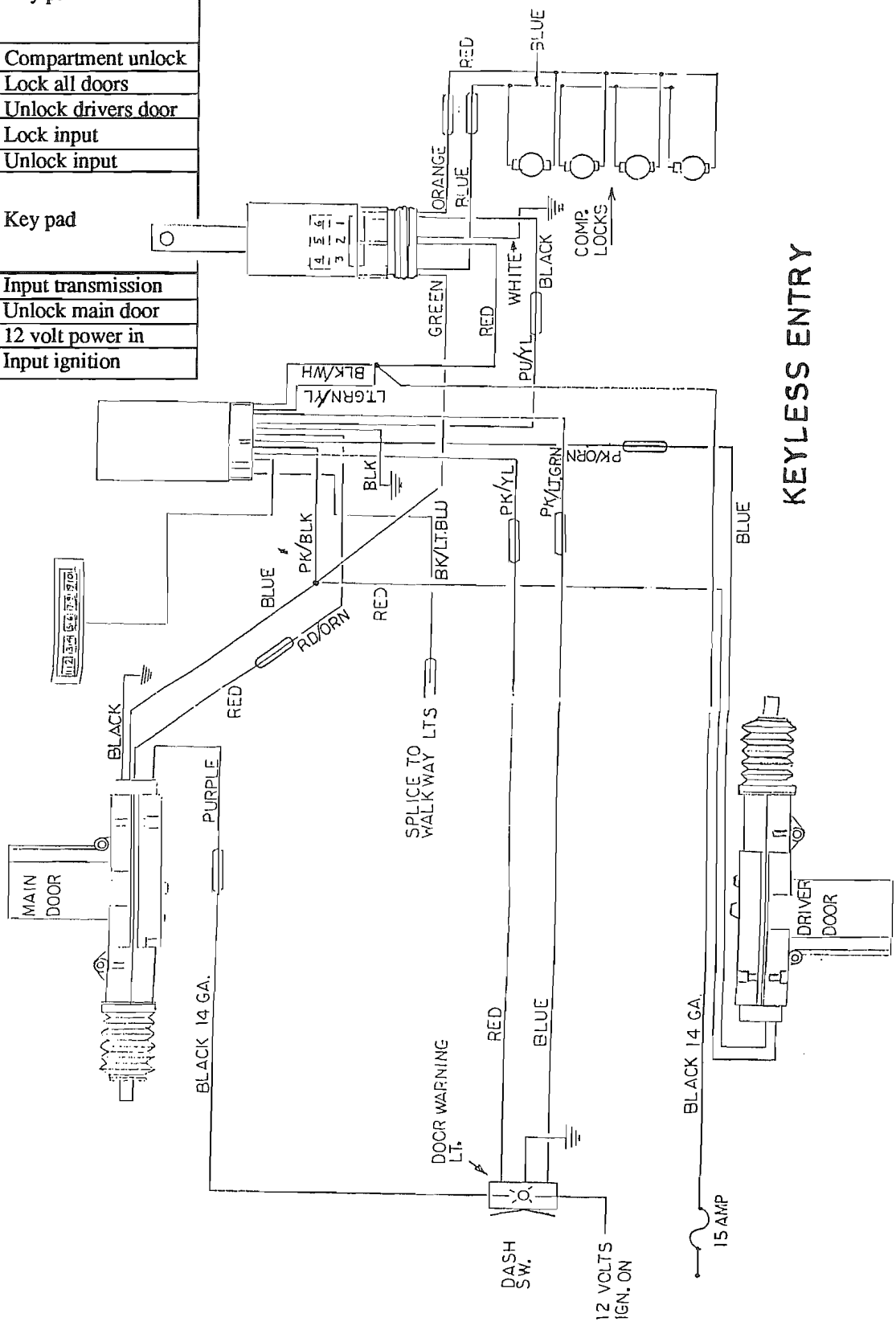
When performing simple tests like these it is important to realize the drive motor is polarity sensitive. This means either wire to the motor may be negative or positive according to the mode. When the mode is reversed (open to close or close to open) the wire that was positive becomes negative and the negative becomes positive.

The drive motor can be tested by providing positive and negative current to the blue and pink wires. Just touching the wires will be enough to activate the motor. Switch the polarity to the wires. Did the drive motor reverse?

Performing these simple tests will isolate 95% of any problems. Don't let the number of wires at the control module scare you. Close examination will show we've only used a few of the functions the module is capable of performing, and the only wires you need to be concerned about are those shown on the following wiring diagram.

KEYLESS ENTRY

COLOR	FUNCTION
Black-Light Blue	Courtesy lights
Light Green-Yellow	
Black	Ground
Light Blue	Key pad
Light Blue-Yellow	
Light Green-Red	
Purple-Yellow	Compartment unlock
Pink-Black	Lock all doors
Pink-Orange	Unlock drivers door
Pink-Yellow	Lock input
Pink-Light Green	Unlock input
Yellow-Black	Key pad
Yellow	
Red	
Brown	
Black-Pink	Input transmission
Red-Orange	Unlock main door
BLK-White	12 volt power in
Pink	Input ignition



MONITOR PANEL

Jensen Industries
1946 East 46th Street
Los Angeles, CA 90058
Phone: 213-235-6800

Operation

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

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 your switching back and forth between the two power sources.

The "Auto Fill" switch is to enable you to fill your fresh water tank by depressing this switch any time you're hooked into a city water system. Water will flow into the tank until the tank registers 3/4 then will automatically shut off. The switch will remain on and illuminated until it's shut off even though the plumbing valve has already closed.

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

Trouble Shooting Guide

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

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

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

PROBLEM: Fan does not operate.

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 display on digital clock when switch is on.

CAUSES: A. Defective switch.

B. Defective clock.

REMEDY: 1. Check switch.

2. Replace clock.

PROBLEM:Partial clock display.

CAUSES: A. Defective clock module.

REMEDY: 1. Replace clock.

PROBLEM:Hour or minute set will not function when switch is operated.

CAUSES: A. Defective switch or clock.

REMEDY: 1. Check switches.

2. Replace clock.

PROBLEM:Improper or inaccurate time display.

CAUSES: A. Defective clock.

REMEDY: 1. Replace clock.

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

CAUSES: A. No power to panel.

B. Defective circuit board.

REMEDY: 1. Check fuses and power leads.

2. Repair or replace panel.

PROBLEM:Improper level indication on one or two tanks.

CAUSES: A. Faulty wiring from panel to sensors.

B. Faulty circuit board.

C. Dirty sensors and/or tank.

REMEDY: 1. Check wiring to sensors.

2. Clean sensors and tank.

3. Replace tank sensor harness.

4. Replace or repair circuit board.

PROBLEM:Improper level indication on all water tanks.

CAUSES: A. Faulty circuit board.

REMEDY: 1. Replace or repair circuit board.

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

CAUSES: A. Connection between tank and panel faulty.

B. Poor or no ground between tank and vehicle.

C. Faulty tank sending unit or faulty circuit board.

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

2. Repair or replace tank sending unit.

3. Repair or replace circuit board.

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

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

B. Faulty tank sending unit.

C. Faulty circuit board.

REMEDY: 1. Repair shorted wire.

2. Repair or replace sending unit.

3. Repair or replace circuit board.

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

PROBLEM: Appliance switches on panel appear not to work.

CAUSES: A. Faulty switch.

B. No voltage to switch.

REMEDY: 1. Remove panel to expose switches.

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

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

CAUSES: A. Faulty wiring from panel to appliance.

B. Faulty appliance.

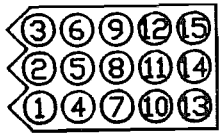
REMEDY: 1. Check wiring to appliances.

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

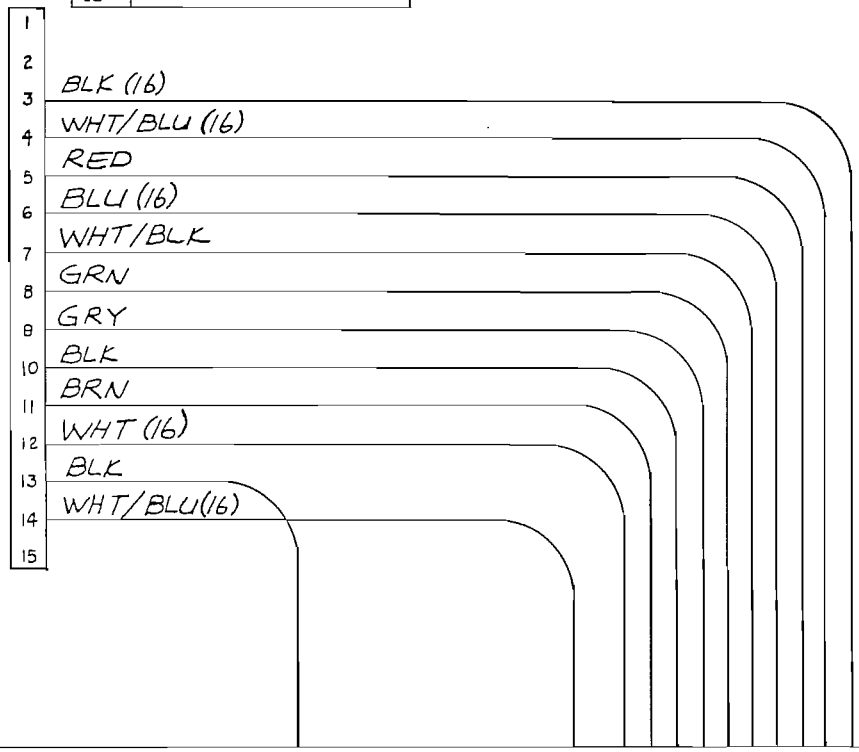
NOTE: When voltage is not available when and where it should be, check for loose or blown fuses and/or for tripped circuit breakers.

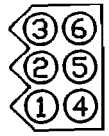
PIN No.	FUNCTION
1	*
2	*
3	12V (CNTRL. PNL. FEED)
4	WATER PUMP SWITCH
5	FRESH WATER TANK
6	PUMP LIGHT
7	AUTO FILL SOLENOID
8	GRAY TANK
9	AUTO FILL SENSOR
10	AUTO FILL SOLENOID
11	BLACK TANK
12	GROUND
13	POWER ON LIGHT
14	WATER PUMP SWITCH
15	*

PIN No.	FUNCTION
1	BATT. COND. METER
2	GENERATOR GROUND
3	GENERATOR START
4	GENERATOR STOP
5	LPG TANK
6	GEN. IND. LT.

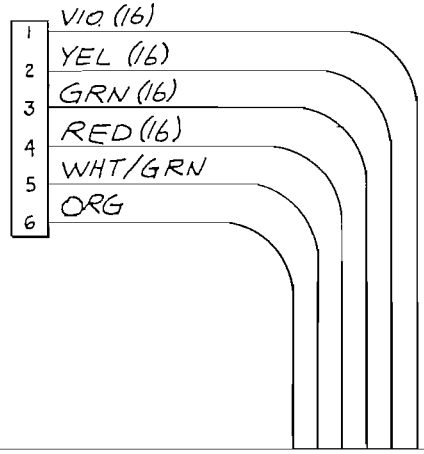


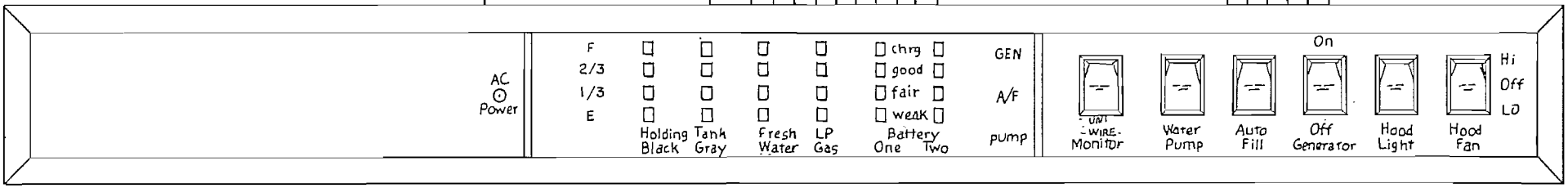
WIRE SIDE





WIRE SIDE



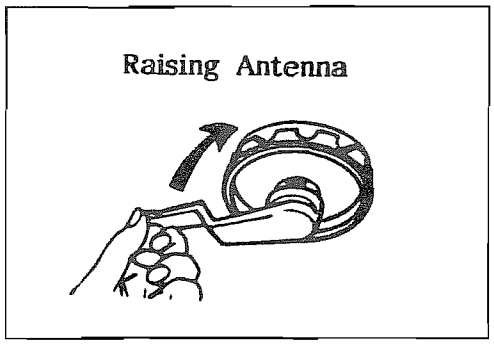


TV ANTENNA

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

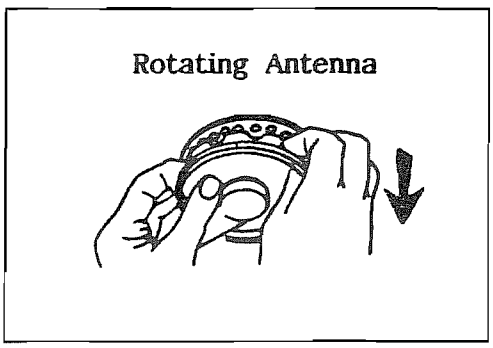
Raising Antenna to Operating Position

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.

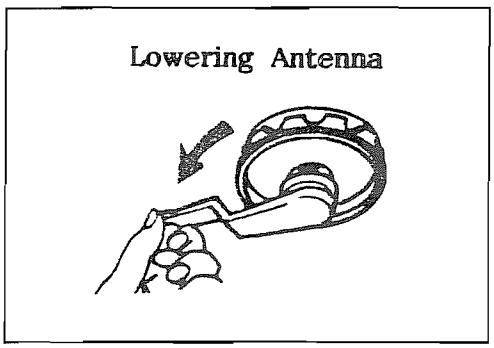


Lowering Antenna to Travel Position

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 positon.



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

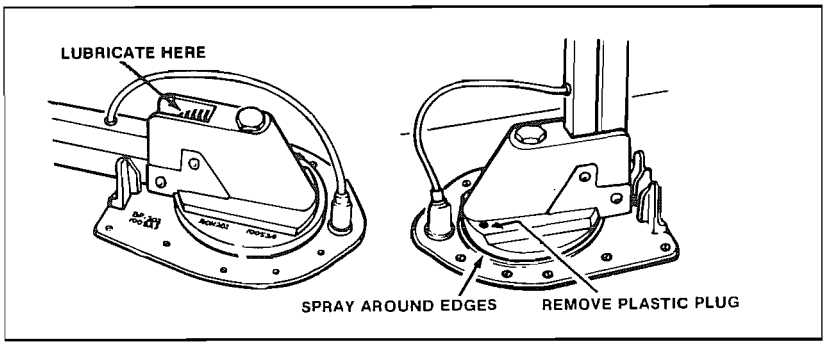
1. Do check parking location for obstructions before raising antenna.
2. Do carefully raise, lower and rotate - if difficult, check for cause.
3. Do rotate slowly when selecting station and check fine tuning on TV set to make sure it is properly adjusted.
4. Do lower antenna before moving vehicle.

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 trave position and refer to drawing to identify parts indicated in steps below.

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

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

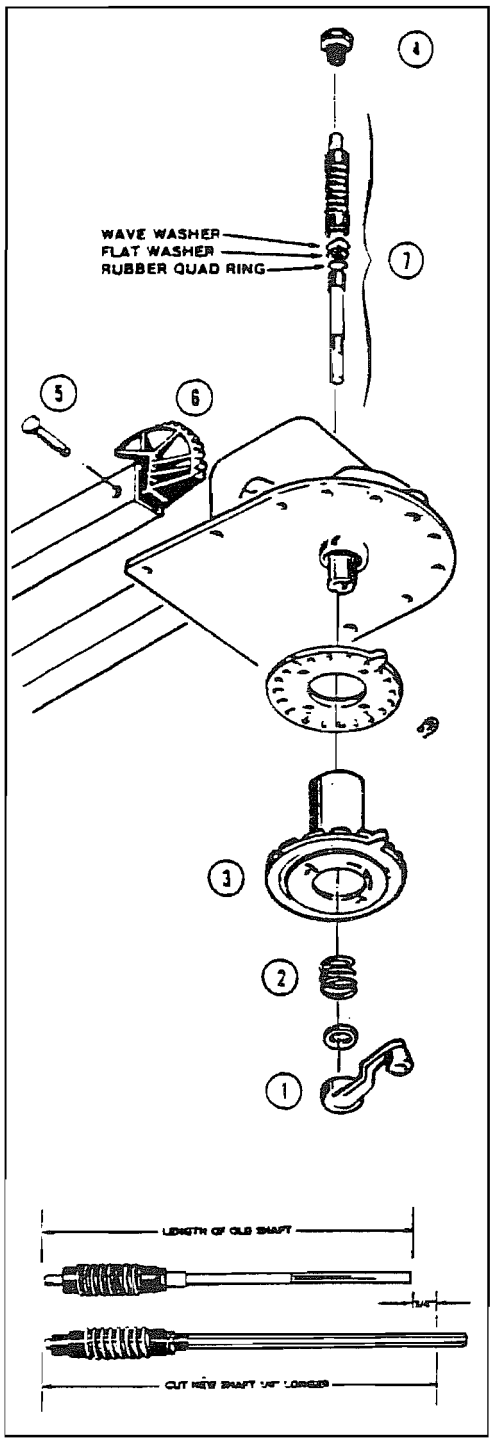
STEP 4: Remove bearing plug (#4) from top of rotating gear housing. Disengage elevating gear (#6) and remove elevating shaft assembly (#7).

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

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

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

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



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

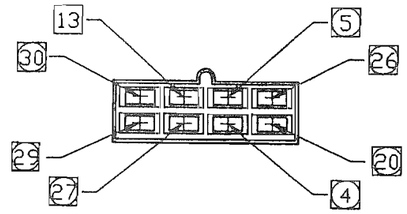
No.	Color	Function
2	Orange	Radio/CB
3	Orange	Lighter
4	Yellow	Aux Start
5	Purple	Monitor
6	Purple	Inverter
8	Yellow	Memory Rad/Phone
13	Blue	Heater A/C
14	Blue	Driving Lights
15	Red	Pass Seat/Window
16	Red	Drive Seat/Window
17A	Orange	Mirrors
17B	Green	Corner Lights
18	Yellow	Comp Relay/Monitr
19	Blue	Ign Kil/Step/Refr
20	Blue/White	Drive Light Relay
21	White	Ground
22	Red	Chevy Fuse Pnl
23	Orange	4-Way
24	Lt Blue	Left Turn

No.	Color	Function
25	Dk Blue	Right Turn
26	Dk Brown	Headlight Switch
27	Green	Back-Up Light Sw
28	White	Ground
29	Yellow	Aux Start Sol
30	Purple	Inverter
31	Red	Sol Fuse Pnl
32	Red	CB 30Amp Mn Bat
33	Red	CB 50Amp Aux Bat
34	Blue	Hood/Visor Light
35	Orange\White	Power Lounge

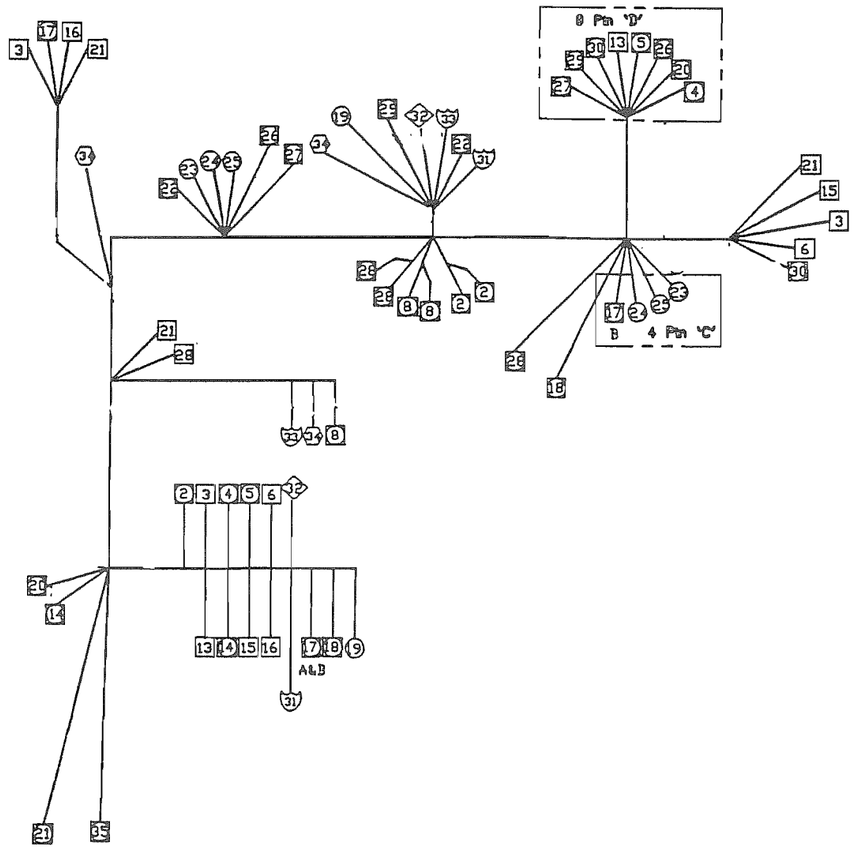
= 20 Ga Wire
= 18 Ga Wire
= 16 Ga Wire
= 14 Ga Wire
= 12 Ga Wire
= 10 Ga Wire
= 8 Ga Wire
= 6 Ga Wire

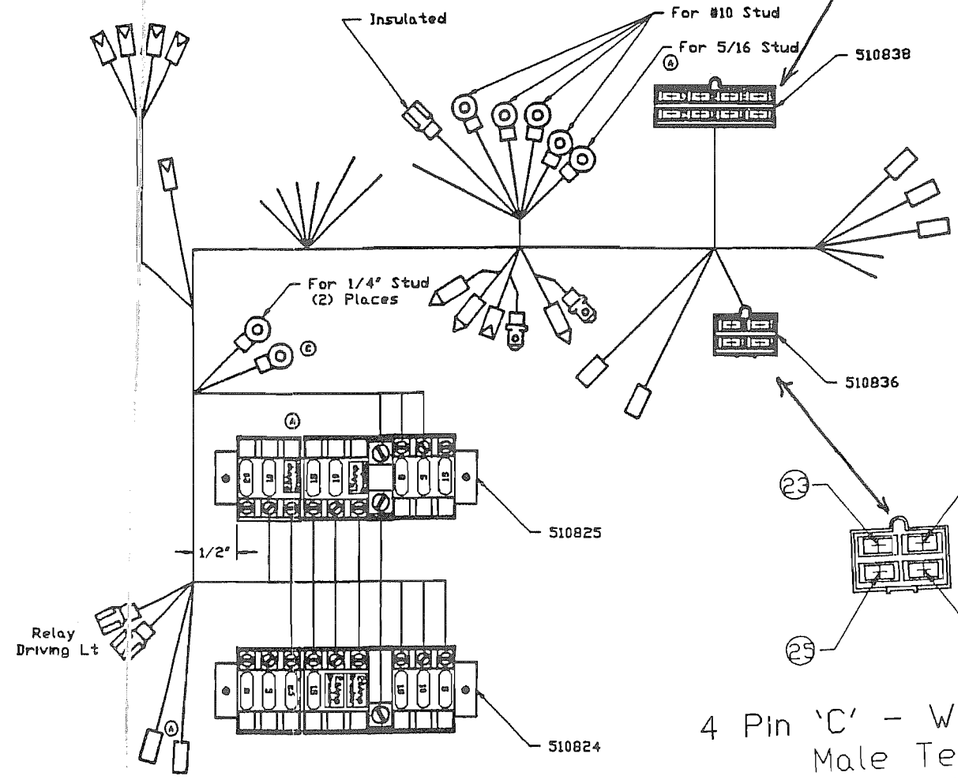
Terminals

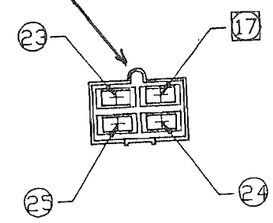
- Bullet .180 Male
- Bullet .180 Female
- Butt Connector
- Ring Miniature
- Spade .250 Female
- Spade .250 Male (Insulated)



8 Pin 'D' - Wireside View
Male Terminal
Switch Harness



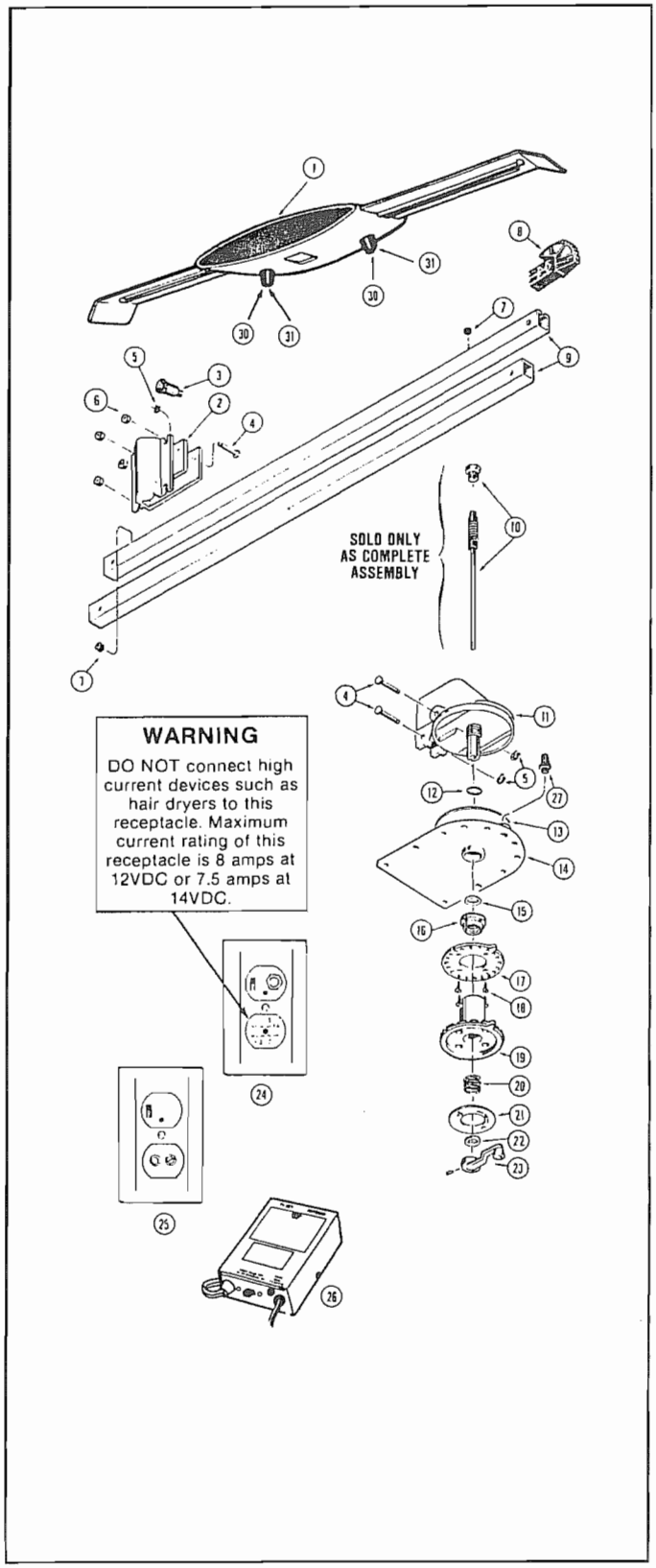




4 Pin 'C' - Wireside View
Male Terminal
Corner Lamp Relay

FIREWALL HARNESS

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



110 VOLT POWER

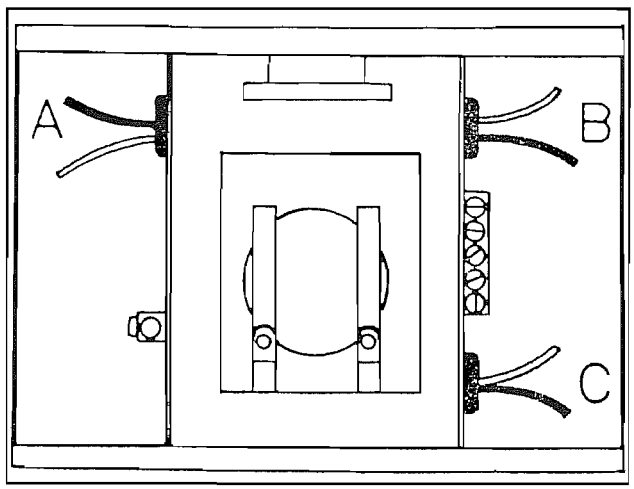
The 110 volt system works very much like your home. When your plugged into city power or start your generator power is supplied to the 110 volt circuit breakers. The circuit breakers, located in the distribution panel in the lower part of the kitchen counter, then supply the power to the receptacles 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.

Getting power to your 110 volt circuits breakers is nothing like your home. If you have the optional invertor there are three sources of 110 volt curtain that may be used; city power when you're plugged in, generator when running and optional invertor.

To protect linemen from an unexpected shock the generator and invertor circuits must be wired through three automatic switch over boxes.



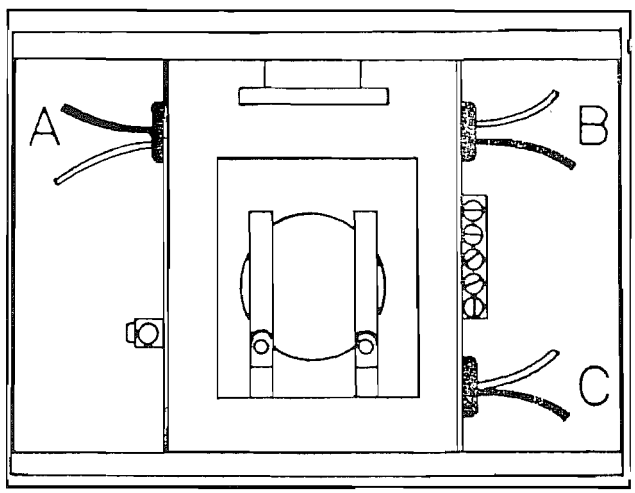
Generator/City Power

A. to 110 volt circuit breakers

B. to generator 30 amp circuit

C. to city power

When plugged into city power the current path is from C to A. When you start your generator unplug from city power the points switch and the power flow is from B to A. If your plugged into city and you start the generator city power has the priority so the current flow is C to A.



Rear Air Conditioner

A. to rear air conditioner

B. generator 20 amp circuit

*C. to front/rear air conditioner priority switch

*If you have the optional 50 amp power cord service, C would go to the 20 amp leg of this service.

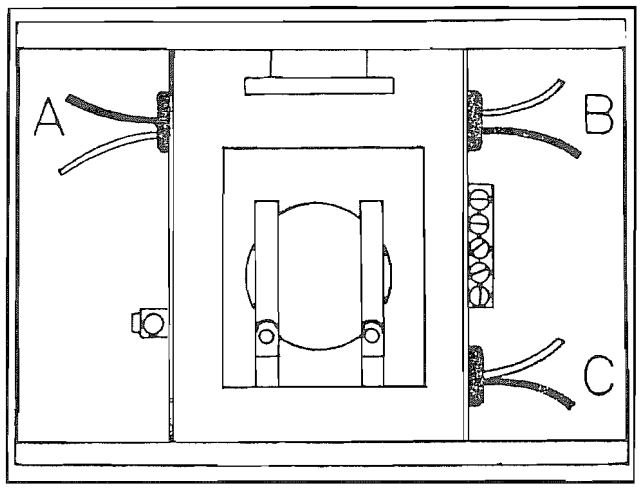
When plugged to city power with the optional 50 amp service cord or the front/rear priority switch turned to rear current flow is C to A. With the motorhome unplugged from city power or

Invertor (optional)

A. ground fault circuit

*B. invertor

C. ground fault circuit breaker



With the motorhome plugged into city power current flow is from C to A. If the motorhome is unplugged and the invertor turned on, current flow is from B to A.

*Note: The invertor 110 volt output is protected by a Ground Fault Breaker located on the invertor under your galley cabinet.

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 OHM meter 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 120V 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.

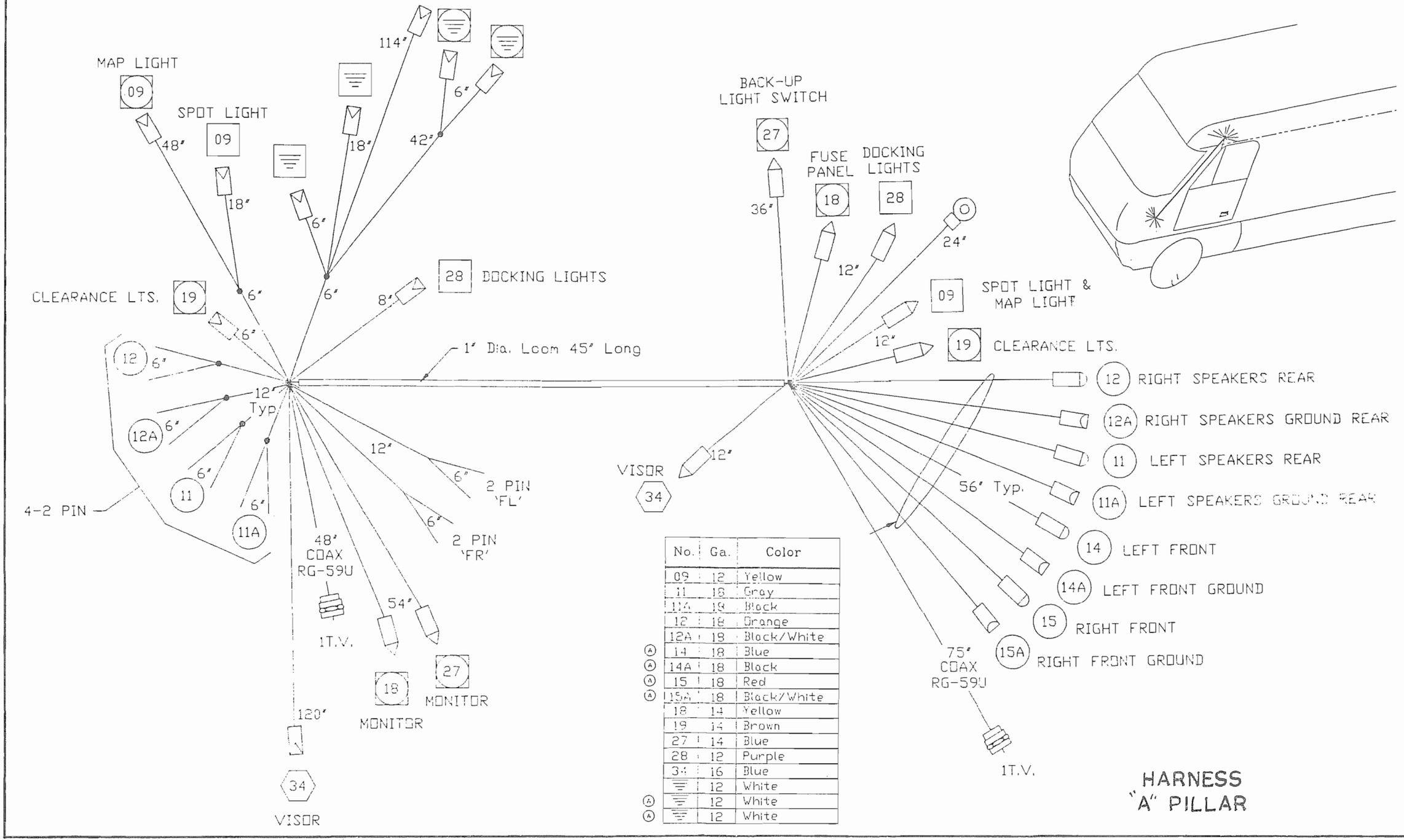
OPENS

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.

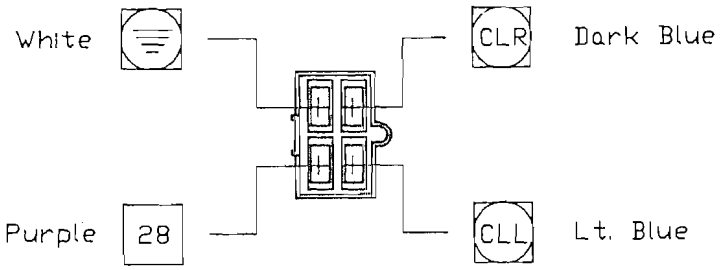
120V WIRING DIAGRAMS

- **120 volt distribution - 30 amp**
- **120 volt distribution - 50 amp**
- **120 volt wiring - 30 ft**
- **120 volt wiring - 33 ft.**
- **120 volt wiring - 36 ft.**
- **120 volt wiring - 50 amp service**



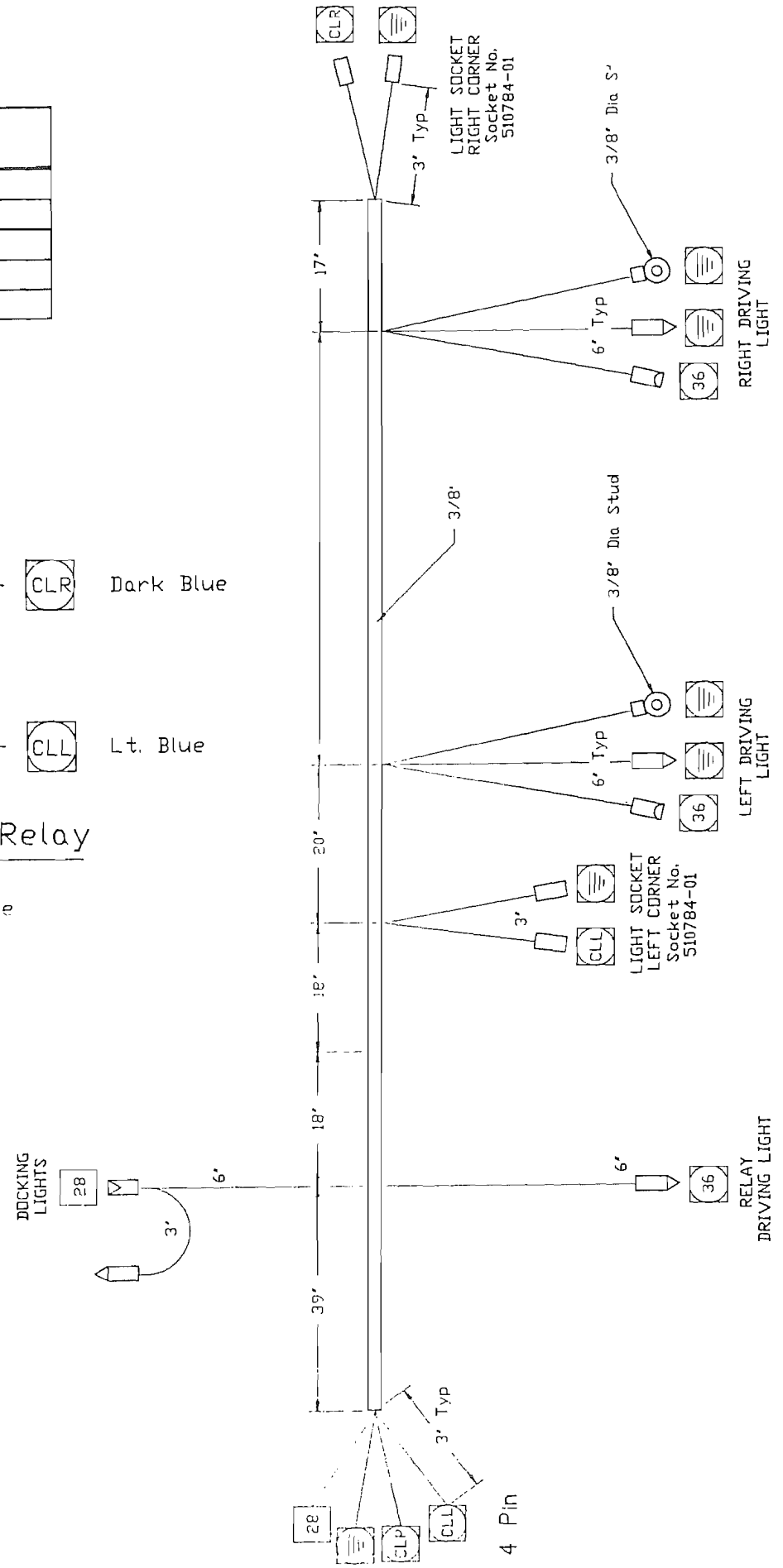
No.	Ga.	Color
09	12	Yellow
11	18	Gray
11A	18	Black
12	18	Orange
12A	18	Black/White
(A) 14	18	Blue
(A) 14A	18	Black
(A) 15	18	Red
(A) 15A	18	Black/White
18	14	Yellow
19	14	Brown
27	14	Blue
28	12	Purple
34	16	Blue
⏚	12	White
(A) ⏚	12	White
(A) ⏚	12	White

No.	Ga.	Color
28	12	Purple
36	14	Red
CLL	14	Blue
CLR	14	Dark Blue
⏚	14	White



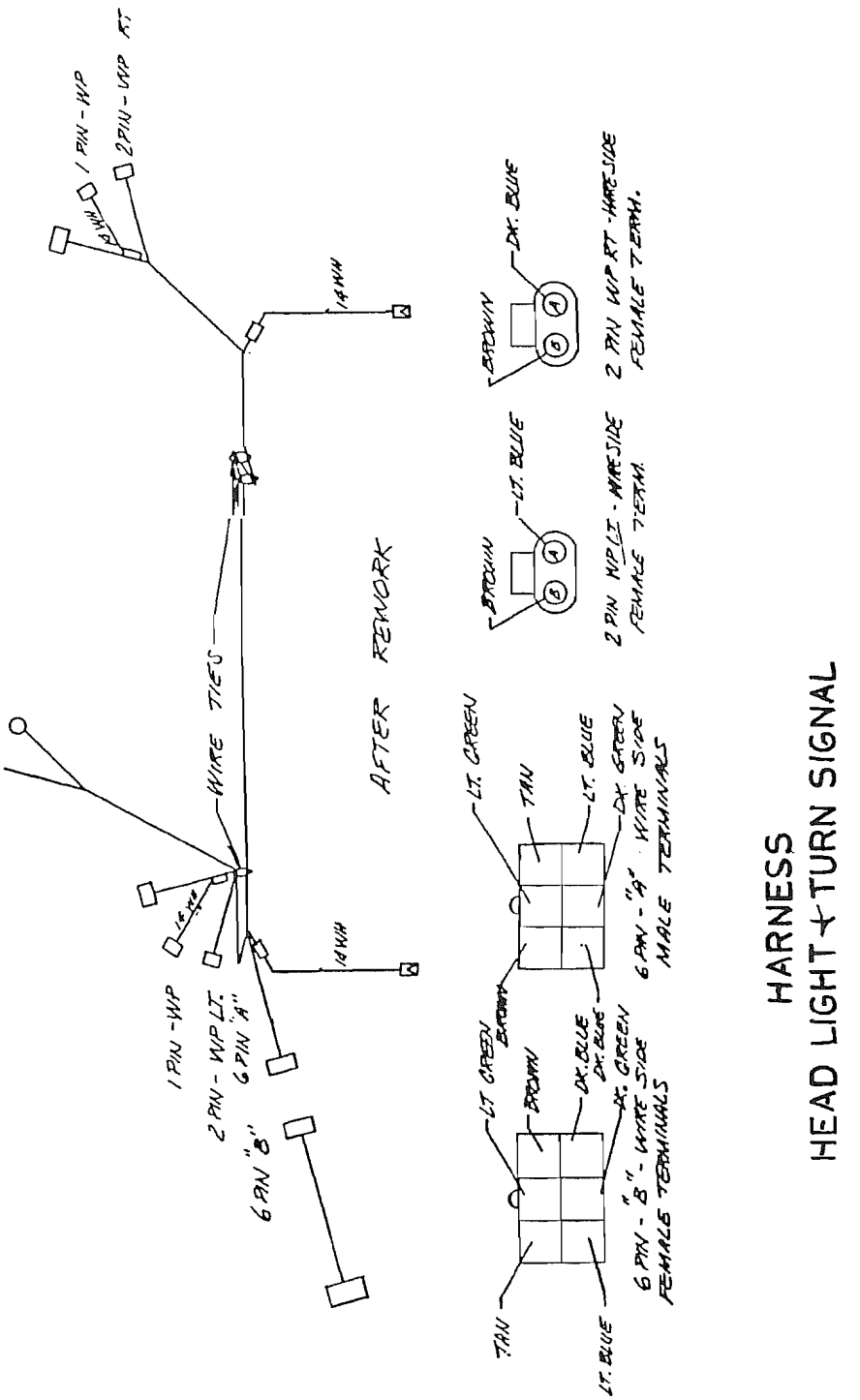
4 Pin
Corner Lamp Relay

Wire Side View
Terminals: Female



HARNESS
DRIVING & CORNER LAMP

HEAD LIGHT AND TURN SIGNAL HARNESS



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 Land Yacht 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.

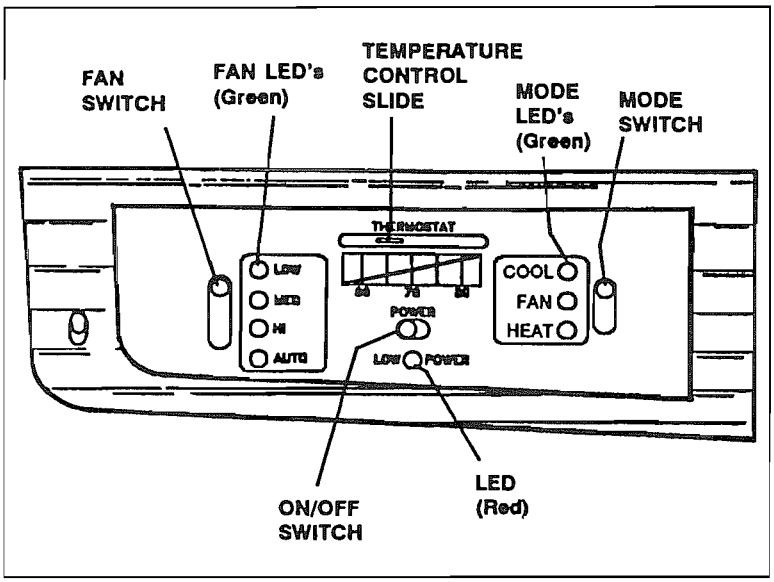
Both air conditioners may be operated when the generator is running or if you have optional 50 amp service. Set the priority switch to the front air conditioner and it is powered through the normal circuit. The generator powers the rear air conditioner through a separate circuit.

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 (Model 610015.405)

CONTROL DESCRIPTION:



1. Power Switch:

   a. Located lower center of control.
   b. Turns air conditioner ON to set condition of FAN and MODE switch.
   c. Turns air conditioner OFF.
   d. Green LED lights next to FAN and MODE switch light up to indicate power ON.
   e. No LED lights on when control is OFF.

2. Mode Switch:

   a. Three position switch located on right side of control.
   b. Used to select COOLING, FAN or HEAT mode of air conditioner operation.
   c. Mode selected is indicated by green LED light when control is turned on.

3. Fan Switch:

   a. Four position switch located on left side of control.
   b. Used to select HIGH, MEDIUM, LOW or AUTOMATIC FAN operation.
   c. Fan speed selected is indicated green LED light when control is turned on.

4. Temperature Slide:

   a. Located top center of control.
   b. Moveable arm on control selects temperature at which the refrigerant compressor or electric heater (if so equipped) is turned ON and OFF.
   c. User sets to position to maintain temperature level desired.

5. Low Power Light:

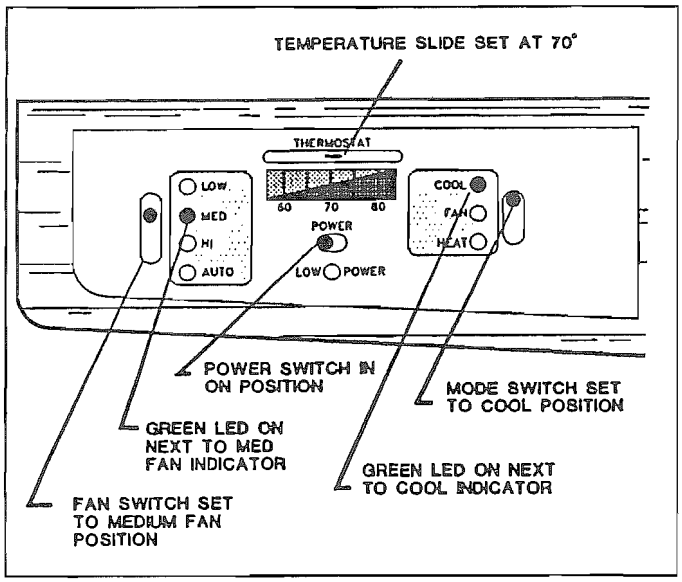
   a. Red indicator light located lower center of control.
   b. When on it indicates AC voltage is below 97 volts AC.
   c. Unit continues to operate (see Special Control Features E.4)

G. Remote Power Switch Connection:

   a. Two screw terminals located on back side of control.
   b. Used to connect a remote ON/OFF switch.
   c. Remove ON/OFF switch, if used, operates same as power switch. (See Special Control Features E.5)

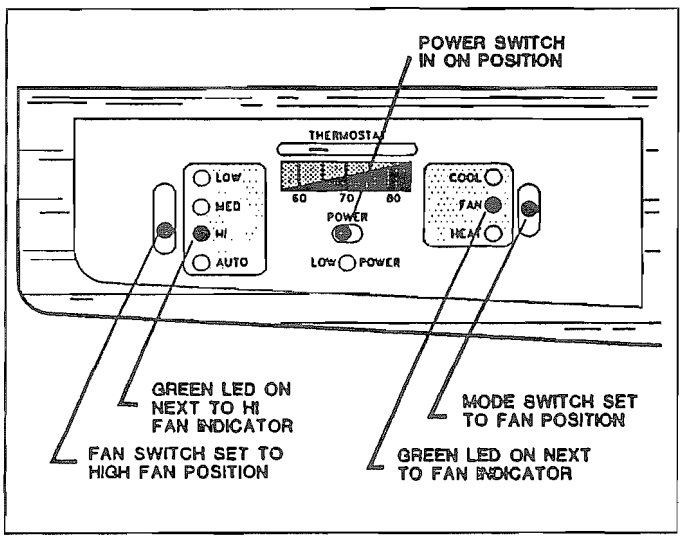
COOLING MODE OPERATION

1. Turn POWER switch (or REMOTE switch if used) 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 E.1 for AUTO fan operation.
5. The fan starts immediately and after a delay of approximately two minutes, the compressor will start.
6. The fan runs continuously with the compressor cycling ON/OFF per the set point to maintain an even comfort range.



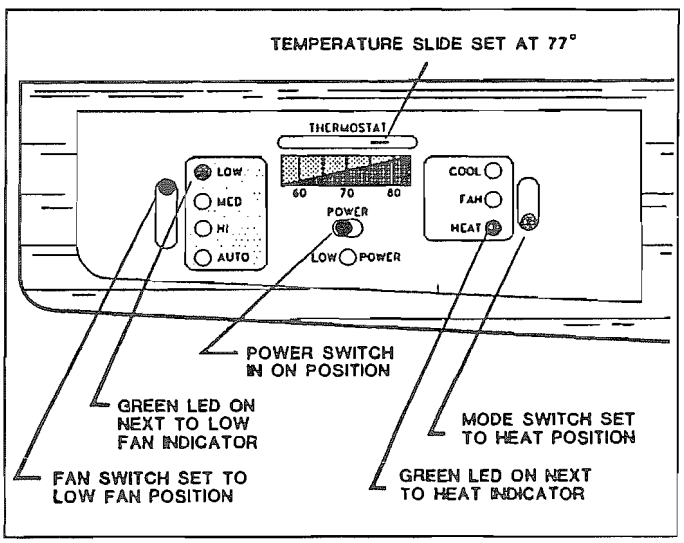
FAN MODE OPERATION

1. Turn POWER switch (or REMOTE switch if used) to ON position.
2. Place MODE switch in FAN position.
3. Select the desired fan speed: FIlMED-LOW-AUTO. NOTE: in AUTO position the fan operates only at low speed in FAN mode of operation.



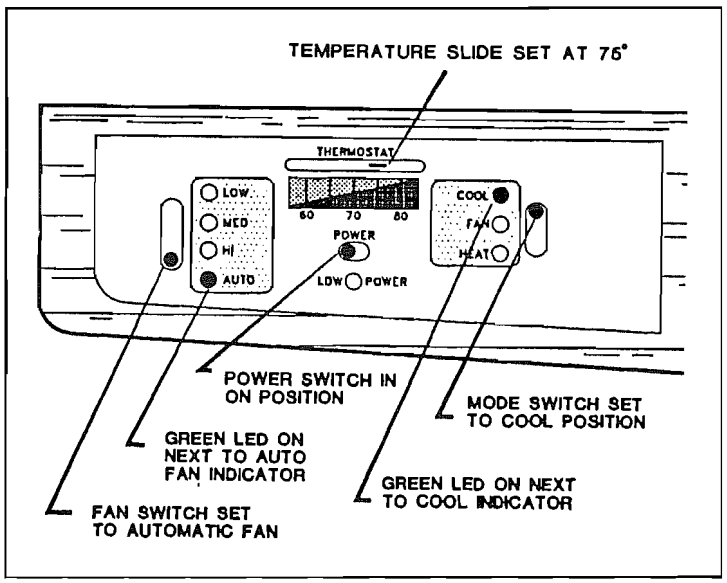
HEAT MODE OPERATION

1. Turn POWER switch (or REMOTE switch if used) to ON position.
2. Place mode switch in HEAT position.
3. Set temperature slide switch to your desired temperature level.
4. Select your desired fan speed HIM ED-LOW-AUTO) NOTE: in AUTO position the fan operates only at low speed in HEAT mode of operation.
5. The fan runs continuously with the electric heater cycling ON/OFF per the set point to maintain an even comfort range.



SPECIAL CONTROL FEATURES:

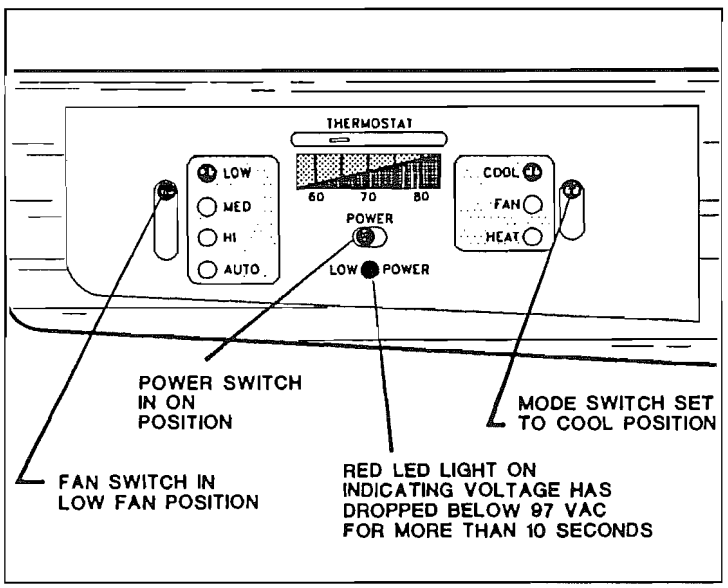
1. Auto Fan: When selected, FAN switch will:
   a. Automatically select the fan speed depending on the difference between set temperature and room temperature.
   b. Temperature difference of:
      8° or more
      Fan operates on HIGH
      4° to 8°
      Fan operates on MEDIUM
      4° or below
      Fan operates on LOW



2. Refrigerant Compressor Time Delay:
   The compressor will always have a delay ill starting of approximately two minutes any time it is required to start.

3. Power Interruption:
   In the event power to the air conditioner is interrupted for any reason, the system will restart ill the condition previously set by user.

4. Low Power Indicator:
   The red light will come on any time AC voltage drops below 97 volts AC for more than ten seconds. The light will remain on until the voltage is above 103 volts AC. The air conditioner will continue to run when red light is on as long as sufficient power is available to compressor to keep it running. NOTE: If red light is on, investigate the cause of the low voltage condition and correct to insure efficient operation of the air conditioner.



5. Remote ON/OFF Switch:
   This switch is user supplied and may be installed up to 40 feet from the control. Two screw terminals are located on the back of the control for this connection. The remote switch acts in conjunction with the power switch and when installed acts like a three way switch in your home.

MAINTENANCE

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

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

Frost Formation on Cooling Coil: Under certain conditions frost may form on the evaporator coil. If this should occur, inspect the filter and clean if dirty. Make sure air louvers are not obstructed. Air conditioners have a greater tendency to frost when the outside temperature is relatively low. This may be prevented by adjusting the thermostat slide to a warmer setting. Should frost continue, operate on LOW, MED, or HIGH FAN setting until the cooling coil is free of frost.

SERVICE

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.

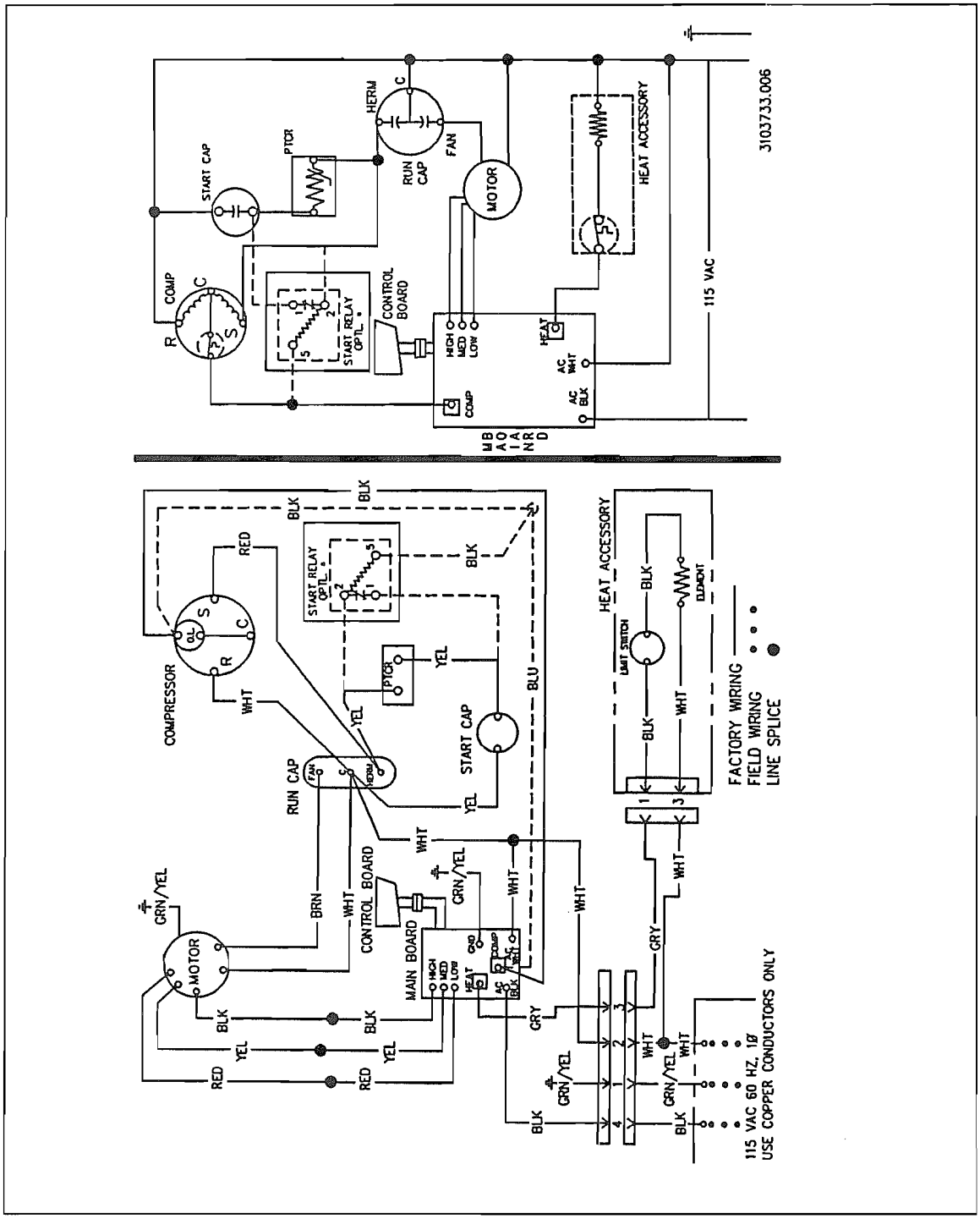
C. Check your fuse or circuit breaker to see if it is open.

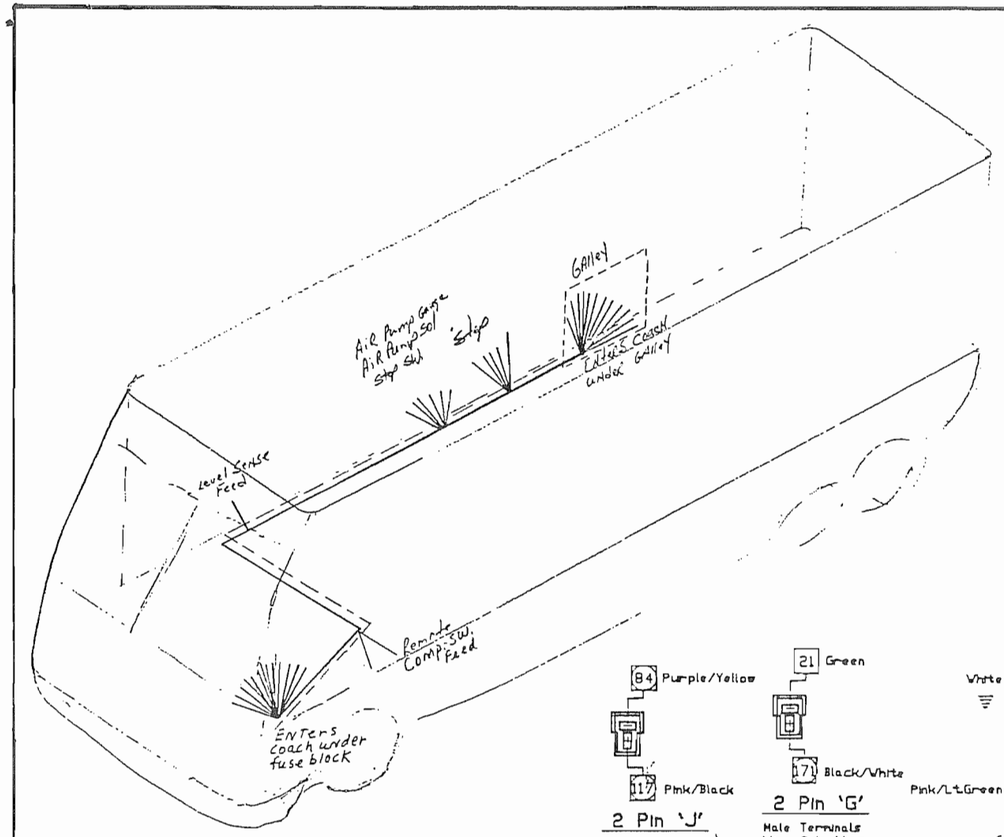
D. In the air conditioner air box, check to be sure the air conditioner conduit is plugged into the junction box and ribbon cable is connected.

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 air conditioner model number and serial number. This information can be found on the unit rating plate located on the air conditioner base pan.

WIRING DIAGRAM

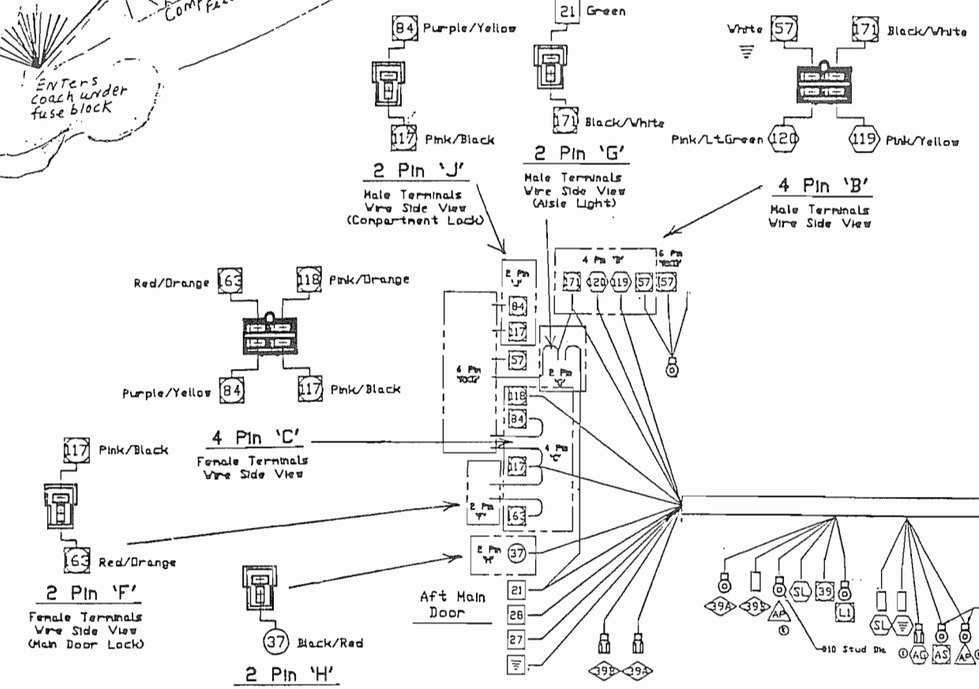




Terminals
Bullet .180 Male
Bullet .180 Female
Butt Connector
Ring Miniature
Spade .250 Female
Spade .250 Male

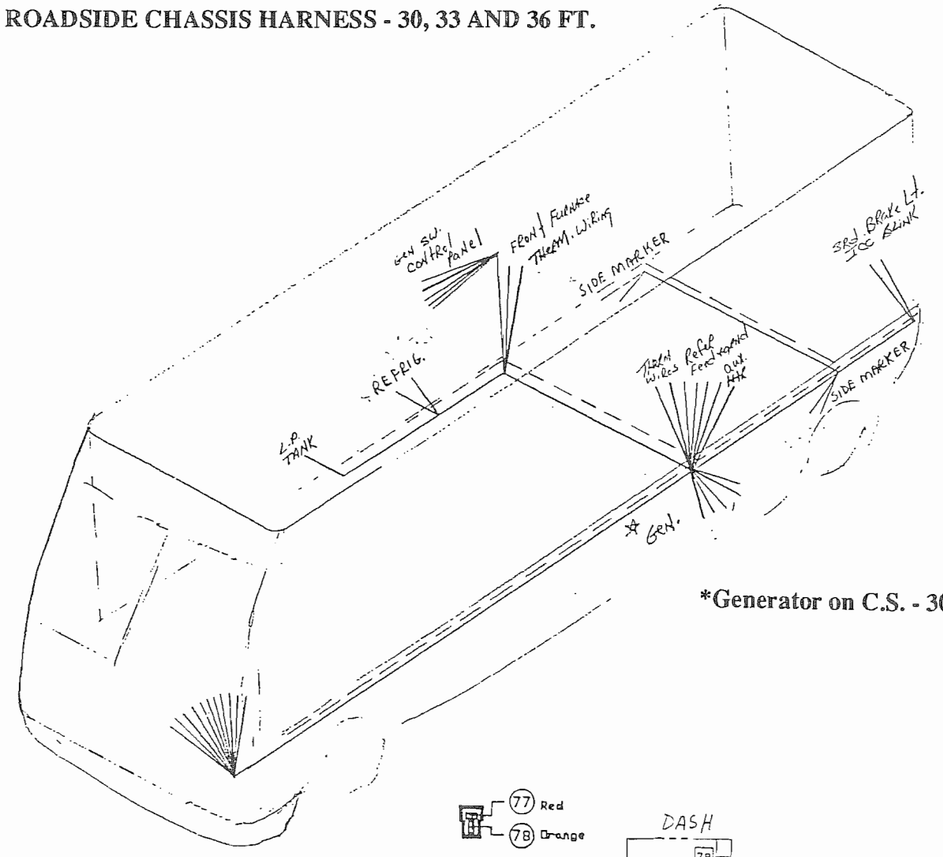
No.	Color	Function
84	Purple/Yellow	Compt Lock
163	Red/Orange	Main Door Lock
57	White	Ground
37	Black/Red	Lock Indicator
117	Pink/Black	Lock All Doors
118	Pink/ Orange	Unlock Drive Door
119	Pink/Yellow	Lock Input
120	Pink/Lt.Green	Unlock Input
171	Black/White	Positive Feed
39	Yellow	Step Control
21	Green	Aisle Light
28	Purple	Docking Light
27	Black/White	Compt Lt Feed
L1	Orange/White	Remote Sw Feed
L2	Orange	Level Sense Feed
AS	Green/White	Air Pump Solenoid
AG	Green	Air Pump Gauge
39A	Red	Step Kill Switch
39B	White	Step Kill Switch
SL	Brown	Step Light
⏚	White	Step Light Gnd
AP	Red	Air Compressor

=14 Ga Wire = 12 Ga Wire
= 18 Ga Wire = 10 Ga Wire
= 16 Ga Wire = 8 Ga Wire



CURBSIDE CHASSIS HARNESS
33 & 36FT.

ROADSIDE CHASSIS HARNESS - 30, 33 AND 36 FT.



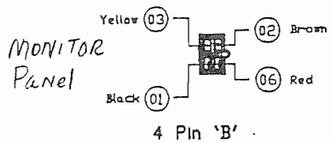
*Generator on C.S. - 30 and 33 ft.

Terminals	
	Bullet .180 Male
	Bullet .180 Female
	Butt Connector
	Ring Miniature
	Spade .250 Female

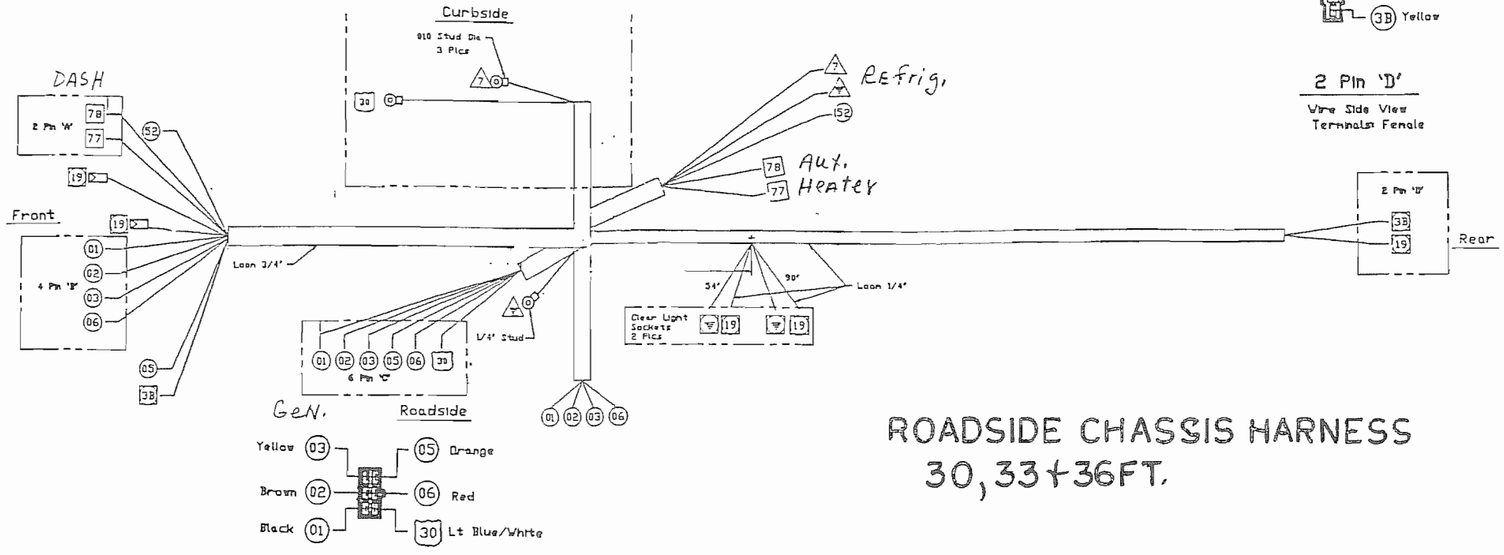
No.	Color	Function
78	Orange	Aux Heat
77	Red	Aux Heat
3B	Yellow	3Rd Brake Lt
19	Brown	ICC Blink
52	Red	Refr Ignition
7	Orange	Refr Feed
⏚	White	Refr Gnd
01	Black	Gen Control Pnl
02	Brown	Gen Control Pnl
03	Yellow	Gen Control Pnl
05	Orange	Gen Control Pnl
06	Red	Gen Control Pnl
⏚	White	Clearance Lts
30	Lt Blue/White	Propane Gauge

= 20 Ga Wire
= 18 Ga Wire
= 16 Ga Wire
=14 Ga Wire
= 12 Ga Wire
= 10 Ga Wire
= 8 Ga Wire

2 Pin 'A'
Wire Side View
Terminals Male



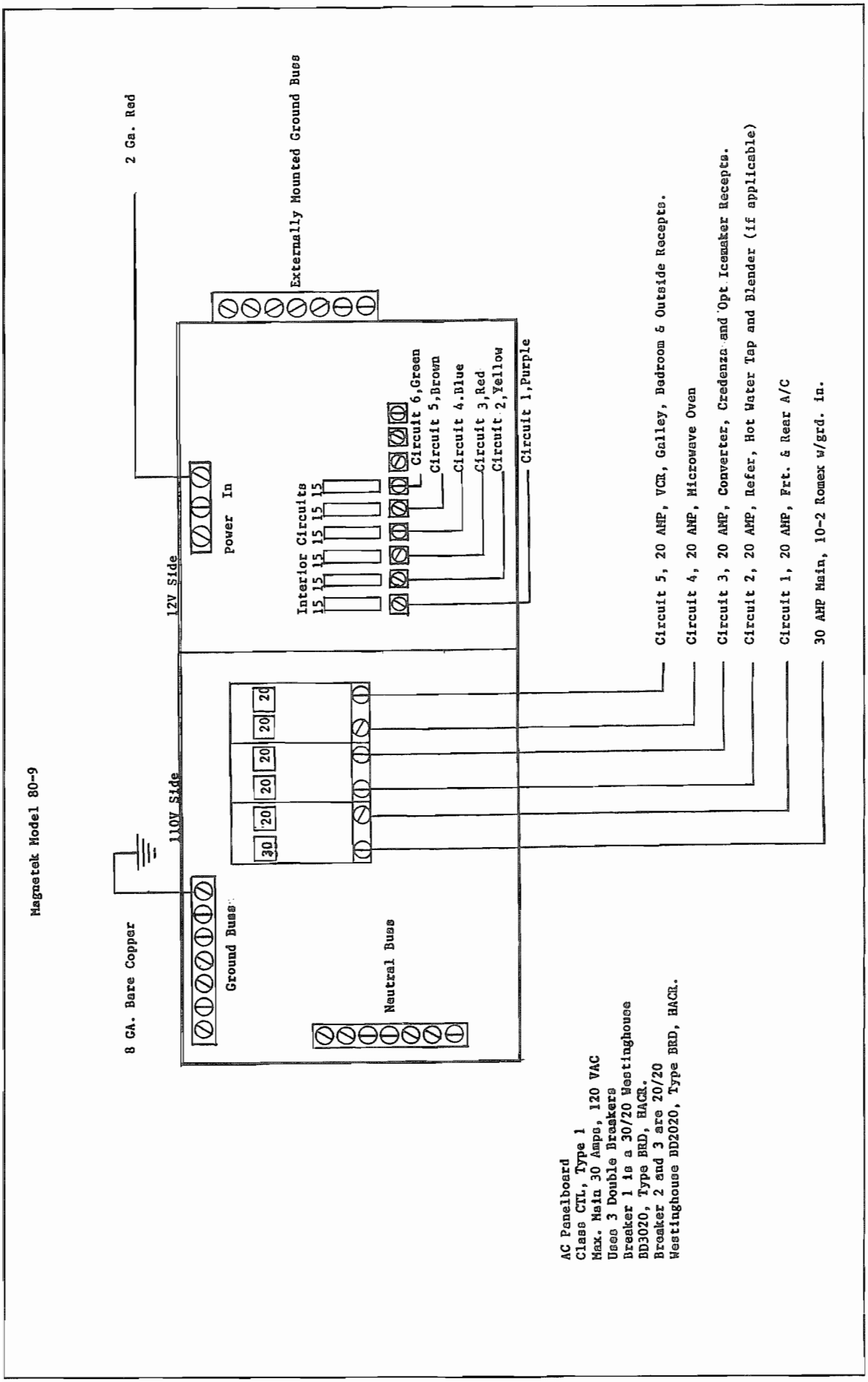
4 Pin 'B'
Wire Side View
Terminals Male



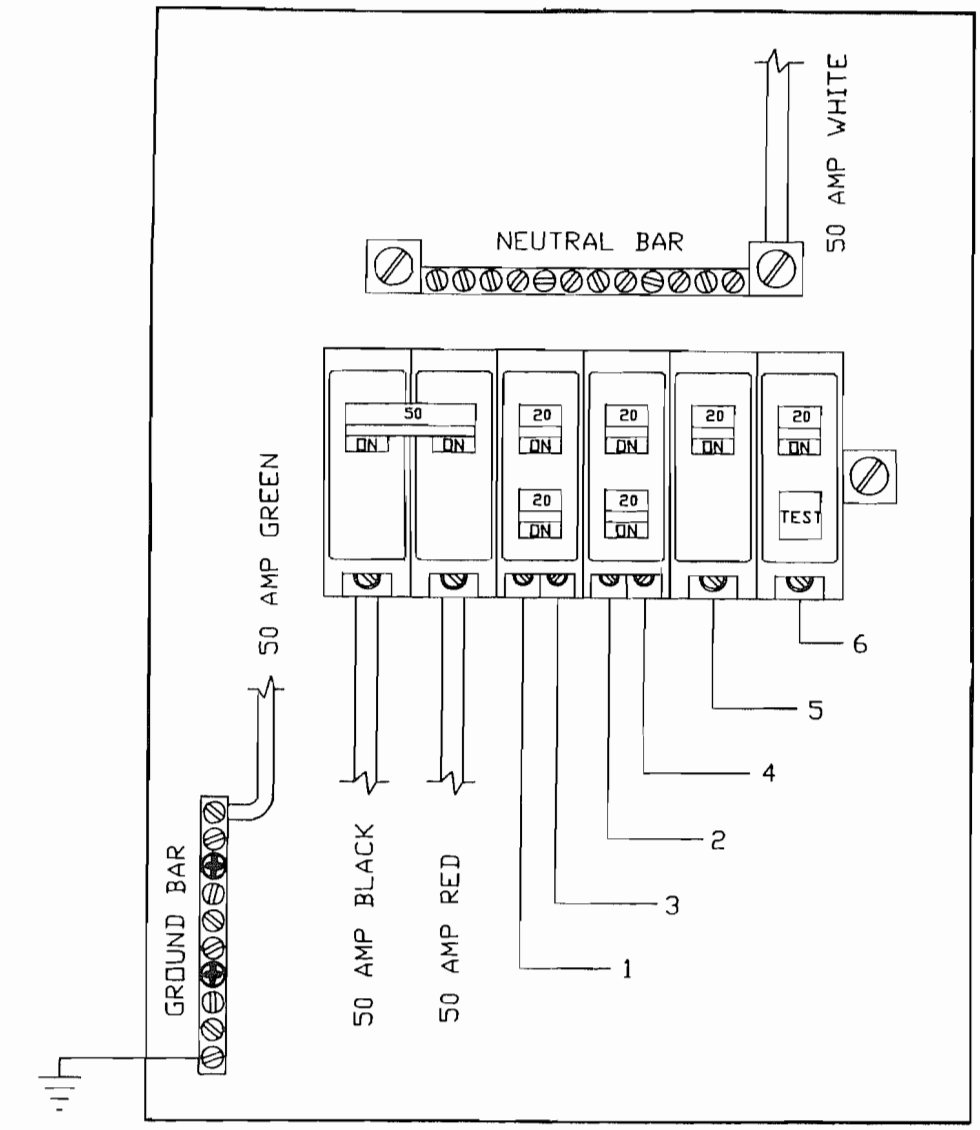
6 Pin 'C'
Wire Side View
Terminals Male

ROADSIDE CHASSIS HARNESS
30, 33 & 36FT.

120 VOLT DISTRIBUTION - 30 AMP



120 VOLT DISTRIBUTION - 50 AMP



Circuit 6, 20 AMP GFI Breaker, 12-2 Romex w/ground, Leg 2, Food Processor, Exter, Bath, Credenza,/Opt. Ice Maker, Dash, Opt. VCR and Dinette Recepts.

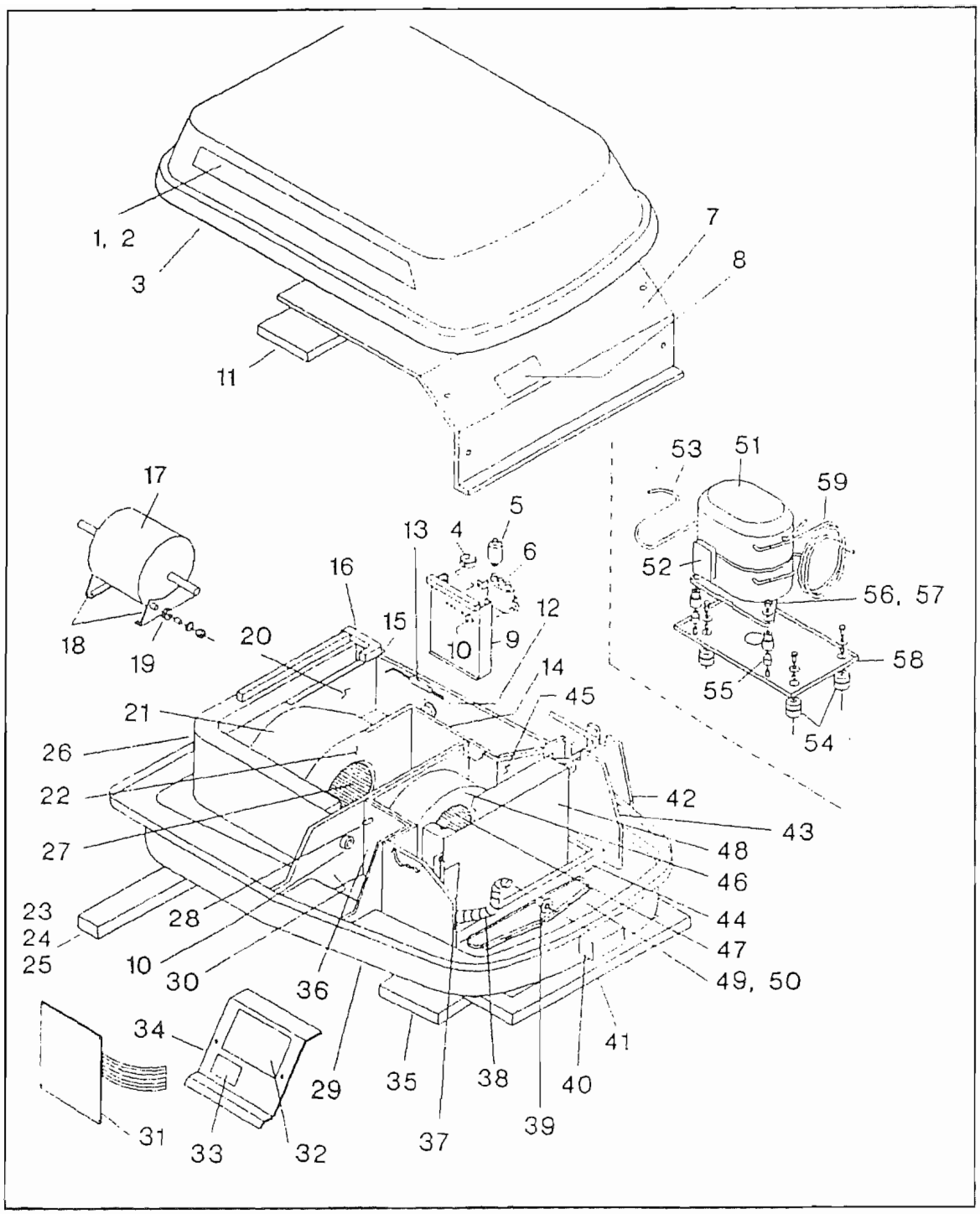
Circuit 5, 20 AMP HACR Breaker, 12-2 Romex w/ground, Leg 1, Refer, Hot Water Tap and Converter Recepts.

Circuit 4, 20 AMP HACR Breaker, 12-2 Romex w/ground, Leg 2, Microwave Oven

Circuit 2, 20 AMP HACR Breaker, 12-2 Romex w/ground, Leg 2, Rear Air Conditioner

Circuit 3, 20 AMP HACR Breaker, 12-2 Romex w/ground, Leg 1, Bedroom Recepts. and Galley Recept.

Circuit 1, 20 AMP HACR Breaker, 12-2 Romex w/ground Leg 1, Front Air Conditioner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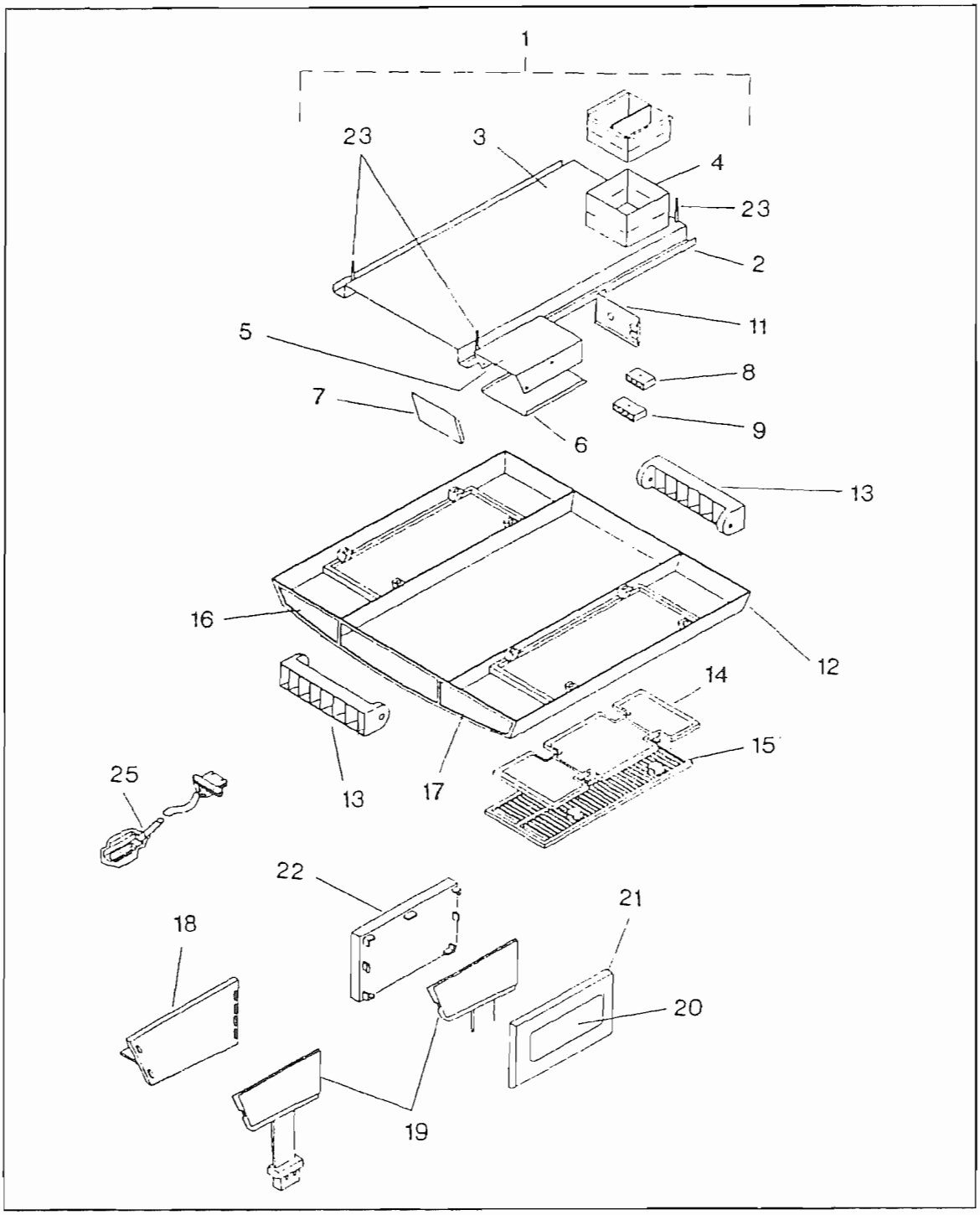
PARTS DESCRIPTION FOR PRECEDING PAGE

1. Decal, LH (not shown)
2. Decal, RH
3. Shroud
4. Bracket, PTCR device
5. PTCR device
6. Capacitor fan/run
7. Cover, evap. w/insulation
8. Decal
9. Panel, Capacitor
10. Bushing, snap in
11. Insulation
12. Capillary tube (2 req)
13. Drier
14. Bulkhead, compressor
15. Plate, close-off
16. Tape, foam
17. Motor
18. Bracket, motor
19. Grommet
20. Blower side, rear
21. Blower scroll
22. Blower side, front
23. Gasket (16 x 1.5")
24. Gasket (16 x 1.5") not shown
    Gasket (10 x 1.5") not shown
26. Coil, condenser
27. Wheel, condenser
28. Support, PC board (4 req.)
29. Base pan
30. Bulkhead, evaporator
31. Board, main
32. Decal, wiring
33. Decal, caution
34. Cover, electrical
35. Insulation, blower housing
36. Bulkhead, electrical box
37. Clamp, cable
38. Conduit
39. Anti short device
40. Plug, male 4 pole
41. Gasket 14 x 14
42. Insulation, evaporator
43. Plate, evaporator close-off
44. Pan, drain
45. Insulation, Evaporator
46. Blower housing evaporator
47. Wheel, evaporator
48. Coil, evaporator
49. Bracket, mtg. less nuts (3 req)
50. Nut with clip (3 req)
51. Compressor
52. Overload
53. Line, discharge
54. Grommets, 7 req.
55. Sleeve
56. Plate, compressor
57. Spring
58. Plate, weldment, compressor mount
59. Line, suction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PARTS DESCRIPTION FOR PRECEDING PAGE

1-24	Box, assembly complete
2-11	Cciling Template, complete
2.	Ceiling template less insulation
3.	Insulation
4.	Duct, discharge lower
5.	Junction box
6.	Cover, junction box
7.	Box front
8.	Plug, female 3 pole
9.	Plug, female 4 pole
10.	Decal, wiring (not shown)
11.	Box back
12-18	Complete air box assembly
12.	Air box only (not available)
13.	Louver, 3 req
14.	Air filter, 2 req
15.	Return air grill, 2 req
16.	Decal, left side
17.	Decal, right side
18.	Mounting, control board
19-22	Thermostat, Complete
19.	Board, control
20.	Decal, thermostat
21.	Cover, thermostat
22.	Base, thermostat
23.	Bolts, mounting, 3 req
24.	Small parts bag (not shown)
25.	Cable, control

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 Directions

WARNING: This furnace is sealed and cannot be lit with a match. Failure to follow the instructions exactly may result in an explosion and possible damage to the furnace and injury to the operator.

1. Set thermostat to "OFF".
2. Turn gas off at outside LP tank and wait 5 minutes.
3. Turn gas valve to "ON".
4. Turn thermostat up until blower comes on.
5. Allow 20 seconds or more for furnace to light due to a pre-purge cycle designed into the ignition system. On initial start up in cold weather it may take up to two (2) minutes for the furnace to light.
6. If burner does not light, set thermostat to "OFF", wait 60 seconds and try again for ignition.
7. If after three tries and no ignition, go to shutdown and determine the cause. Be sure to have gas to the furnace (no air in the gas line).
8. If furnace lights, set thermostat to desired temperature setting.

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.

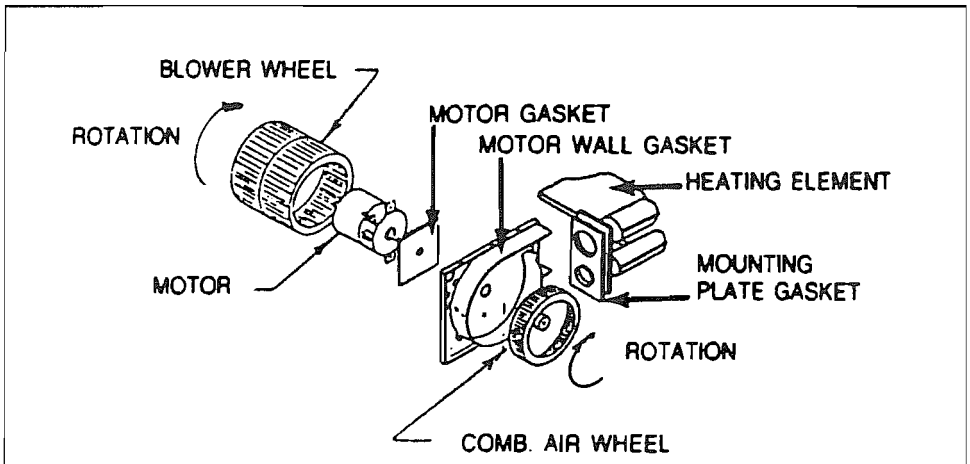


Fig. 1

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 igniter 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 handing and moisture. See Fig. 2.

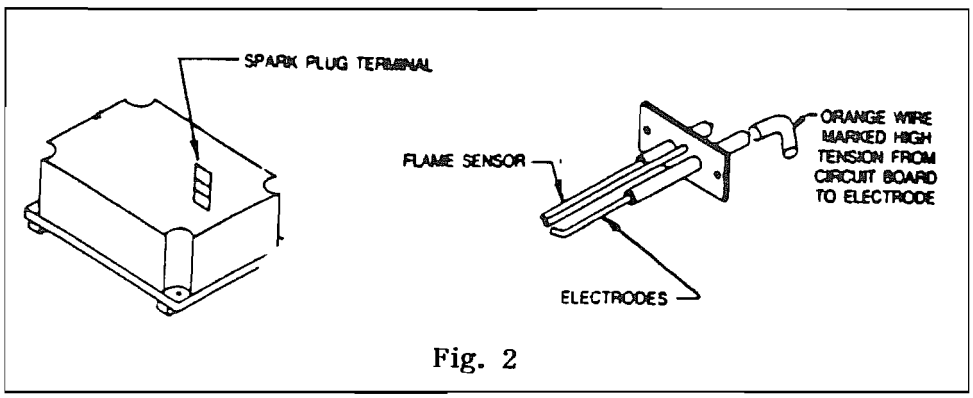


Fig. 2

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.

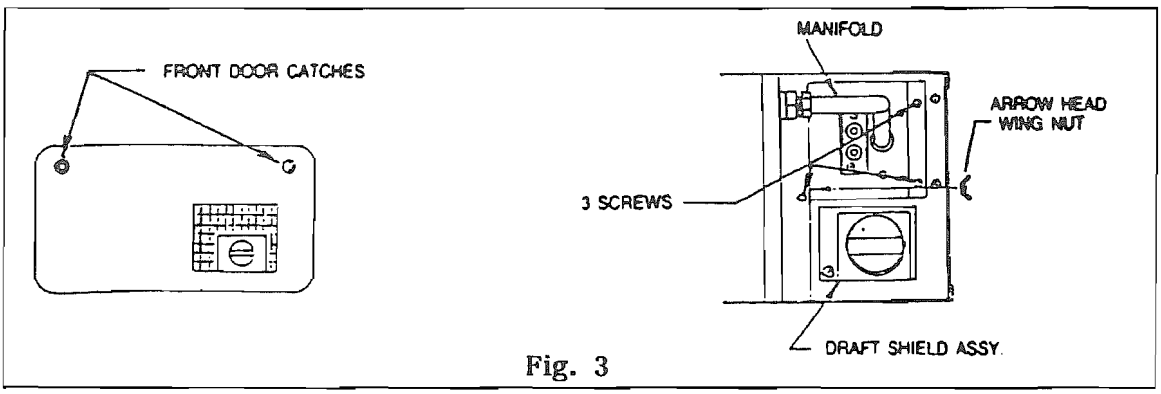


Fig. 3

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.

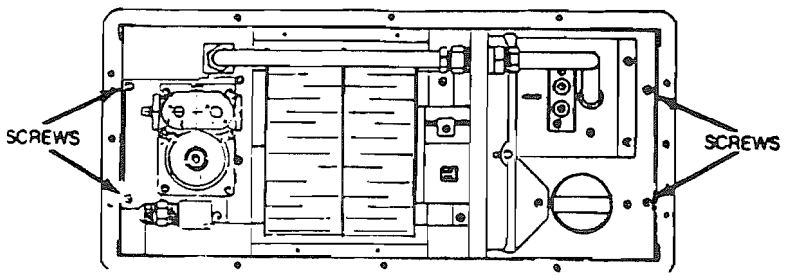


Fig. 4

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.

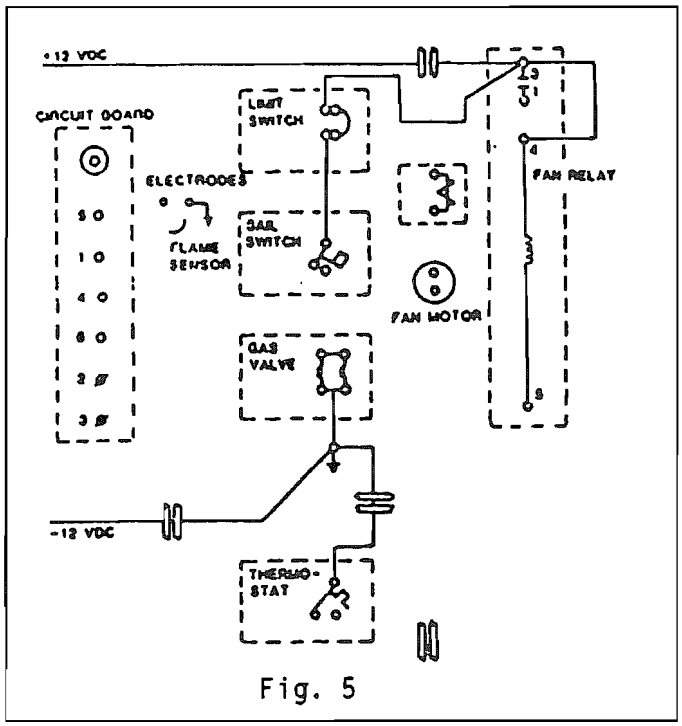


Fig. 5

SEQUENCE OF OPERATION

A. On stand by the + 12 VDC is connected to terminal #3 of the fan relay which is closed. The voltage will extend (1) through the red wire to terminal #1 of the open fan relay, (2) through another red wire to the limit switch, (3) through the limit, (4) through the red wire to the sail switch. See Fig. 5.

B. When the temperature inside the RV drops to the set temperature of the thermostat, the thermostat contacts close to (1) switch 12 VDC to terminal #5 of the fan relay terminal, (2) through the yellow wire to - 12 VDC ground, thus the fan relay coil is energized. See Fig. 6

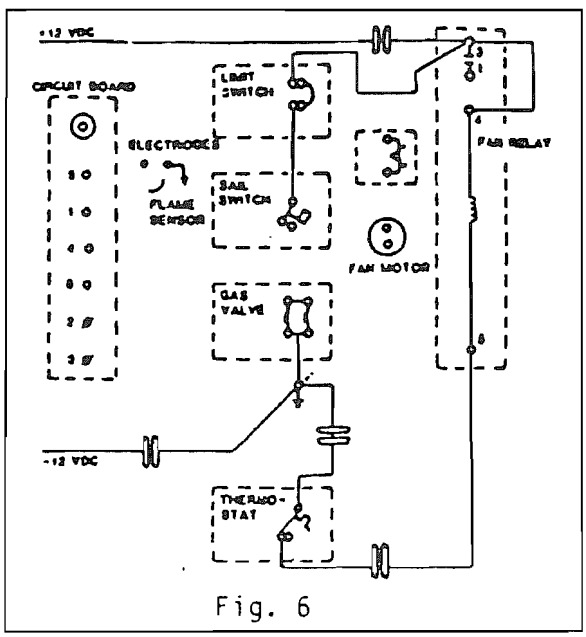


Fig. 6

C. With the fan relay Coil energized, the contacts of the fan relay will close and the +12 VDC will pass (l) through the Contacts from #3 to #1, (2) through the red wire to the Circuit breaker, (3) through the circuit breaker, (4) through the red wire to the motor, (5) through the motor, (6) through

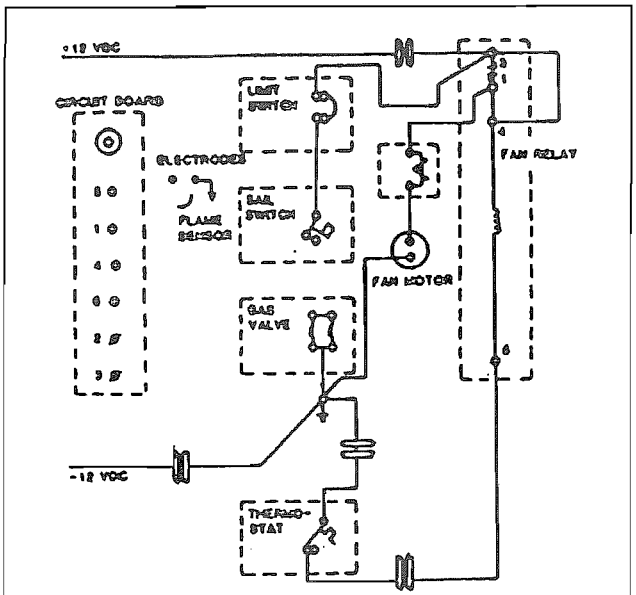


Fig. 7

the black wire to the ground system. Thus, the fan motor runs. See Fig. 7

D. As the fan comes up to speed the air current will close the sail switch and the +12 VDC will pass (1) through the sail switch, (2) through the wire to the #1 terminal of the circuit board.

Note: The ground side of the circuit board is established from terminal 6 through the red wire to the grounded side of the fan relay. When the circuit board is energized it will start the 20 second count down of purge time. See Fig. 8.

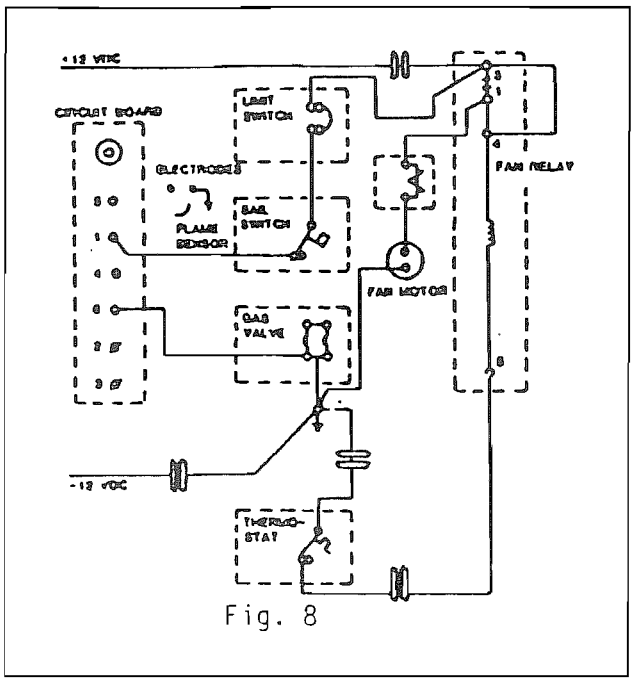
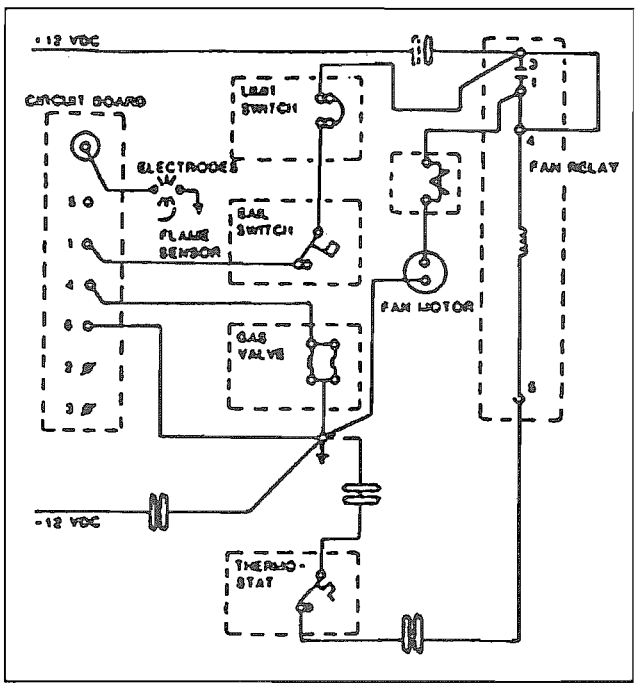


Fig. 8

E. When the 20 second purge time is complete, the circuit board will switch +12 VDC to the ungrounded terminal of the gas valve and the gas valve will open. The circuit board will simultaneously initiate the igniter spark through the large orange wire to the igniter electrode, then ignition will occur. See Fig. 9.

F. When the gas valve is energized and the ignition spark occurs, (Paragraph E) the circuit board will start the 6 to 9 seconds waiting time to prove the presence of a flame. When the flame is established above the burner in less than 6 to 9 seconds, the flame sensor will detect the flame and signal (through the black wire to terminal #5) circuit board to continue the heating cycle.



Note: If the flame sensor does not detect a flame, the flame sensor will signal the circuit board to lock-out the gas valve.

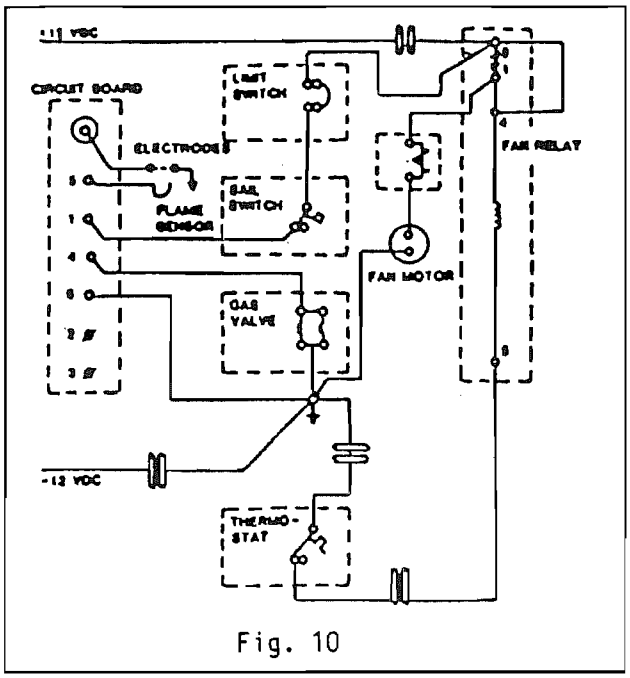


Fig. 10

G. When the temperature of the RV rises above the thermostat set temperature, the thermostat will open and disconnect the -12 VDC to terminal #5 of the fan relay. Then the gas valve will close and the fan relay contacts will open, after a cool down period of 1 to 2 minutes for the heat in the fan relay coil to be extracted. See Fig.11.

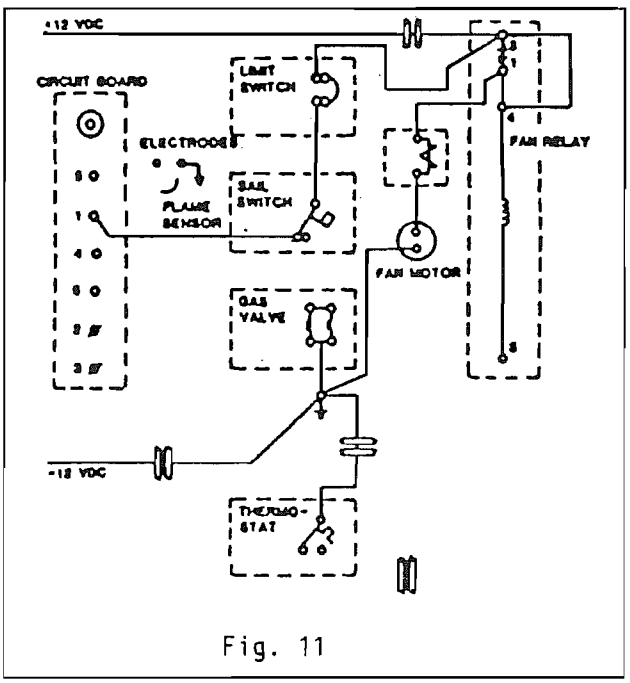


Fig. 11

The complete wiring diagram, with all switches in their normal positions, is shown in Fig. 12.

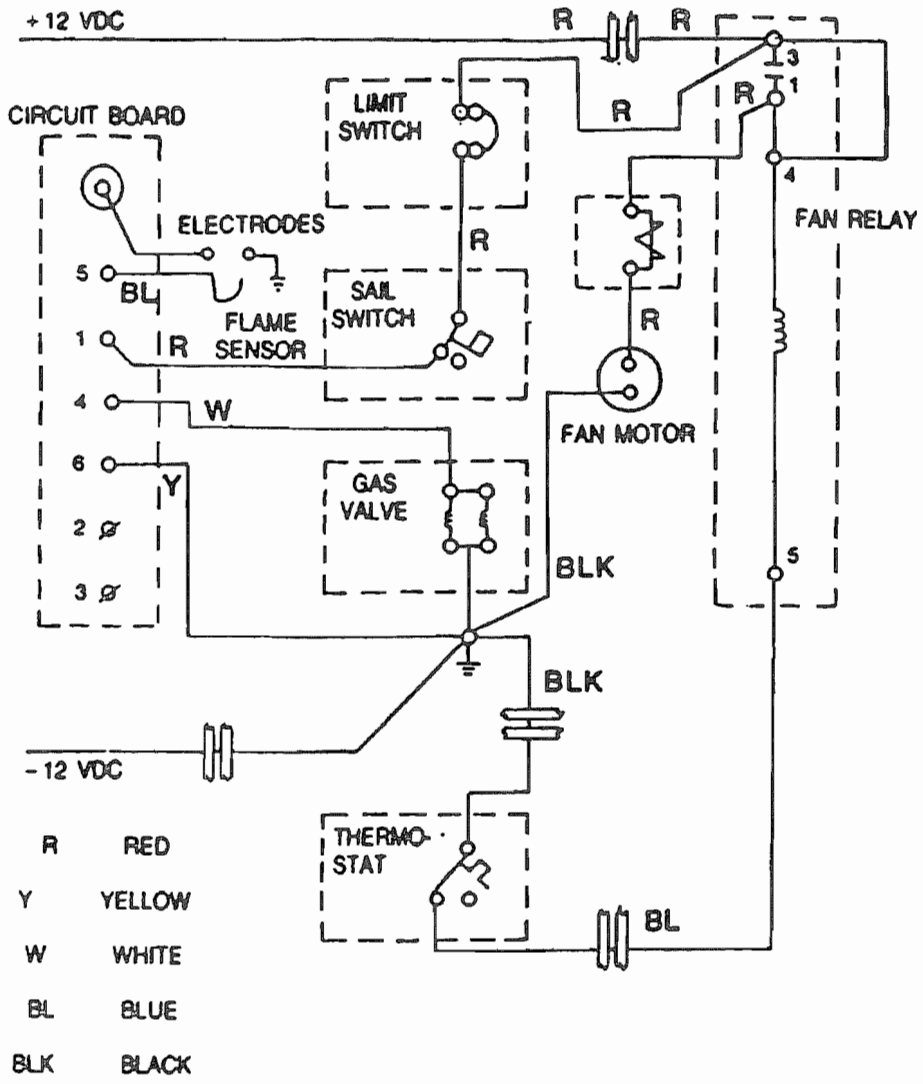
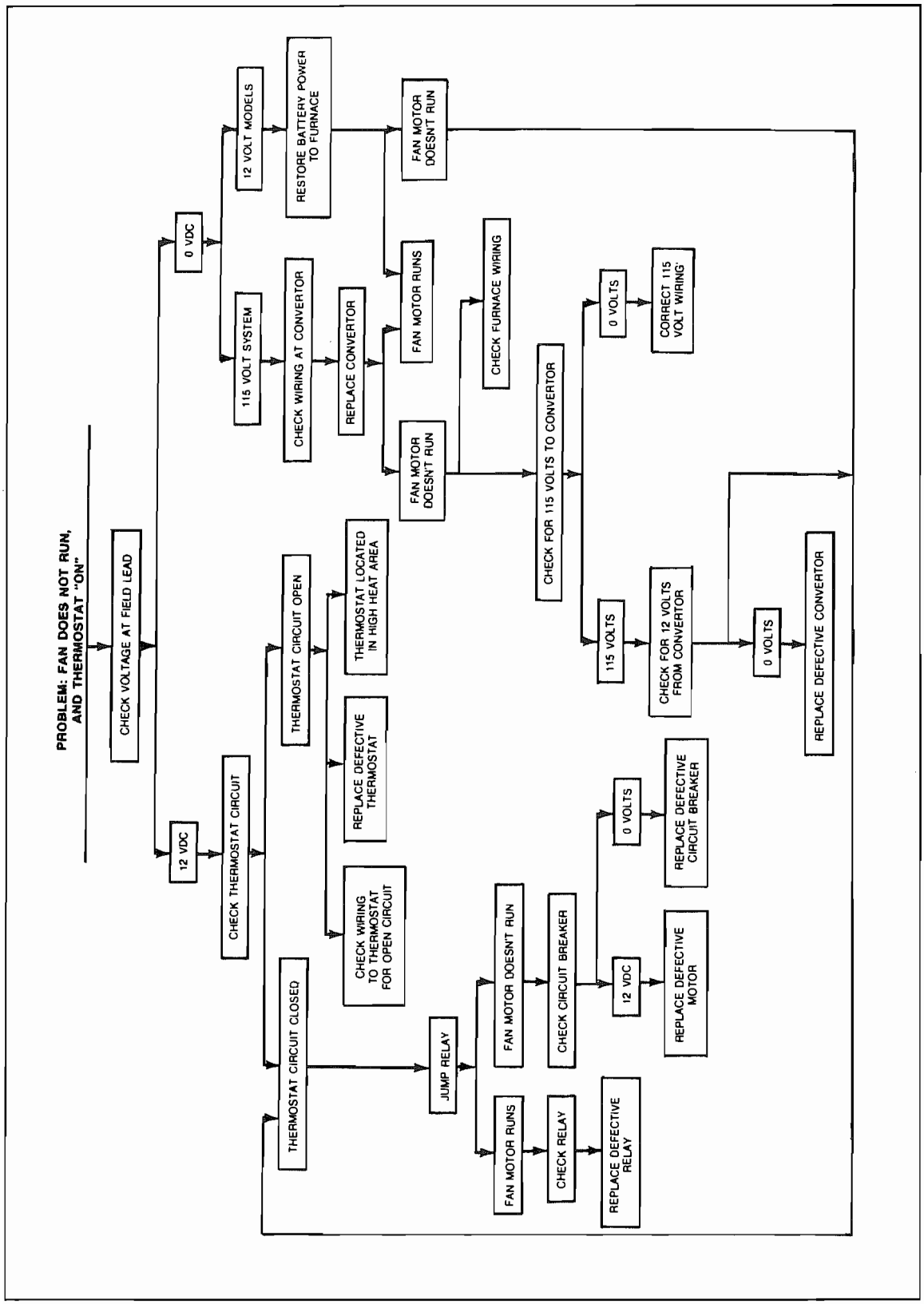
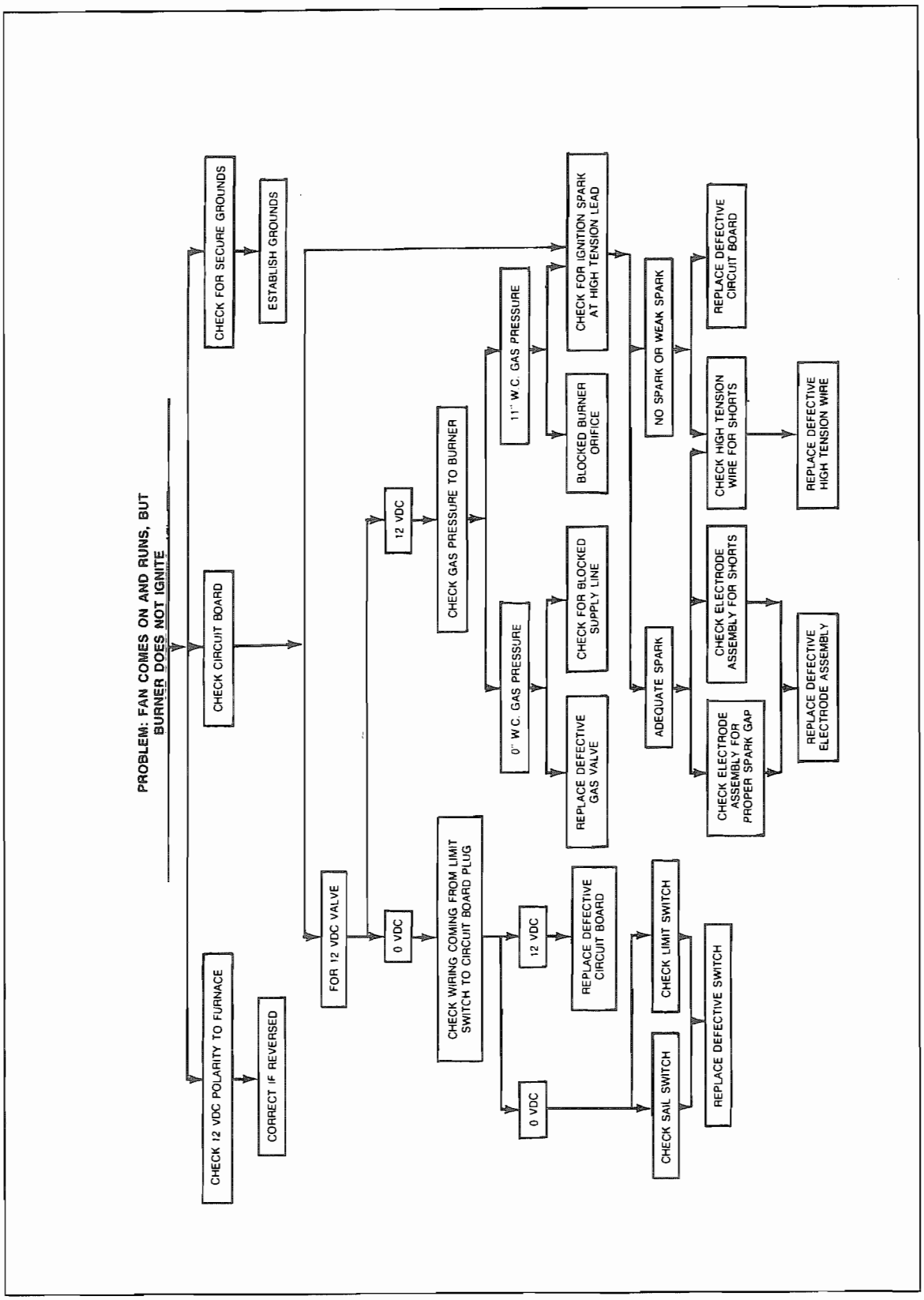


Fig. 12

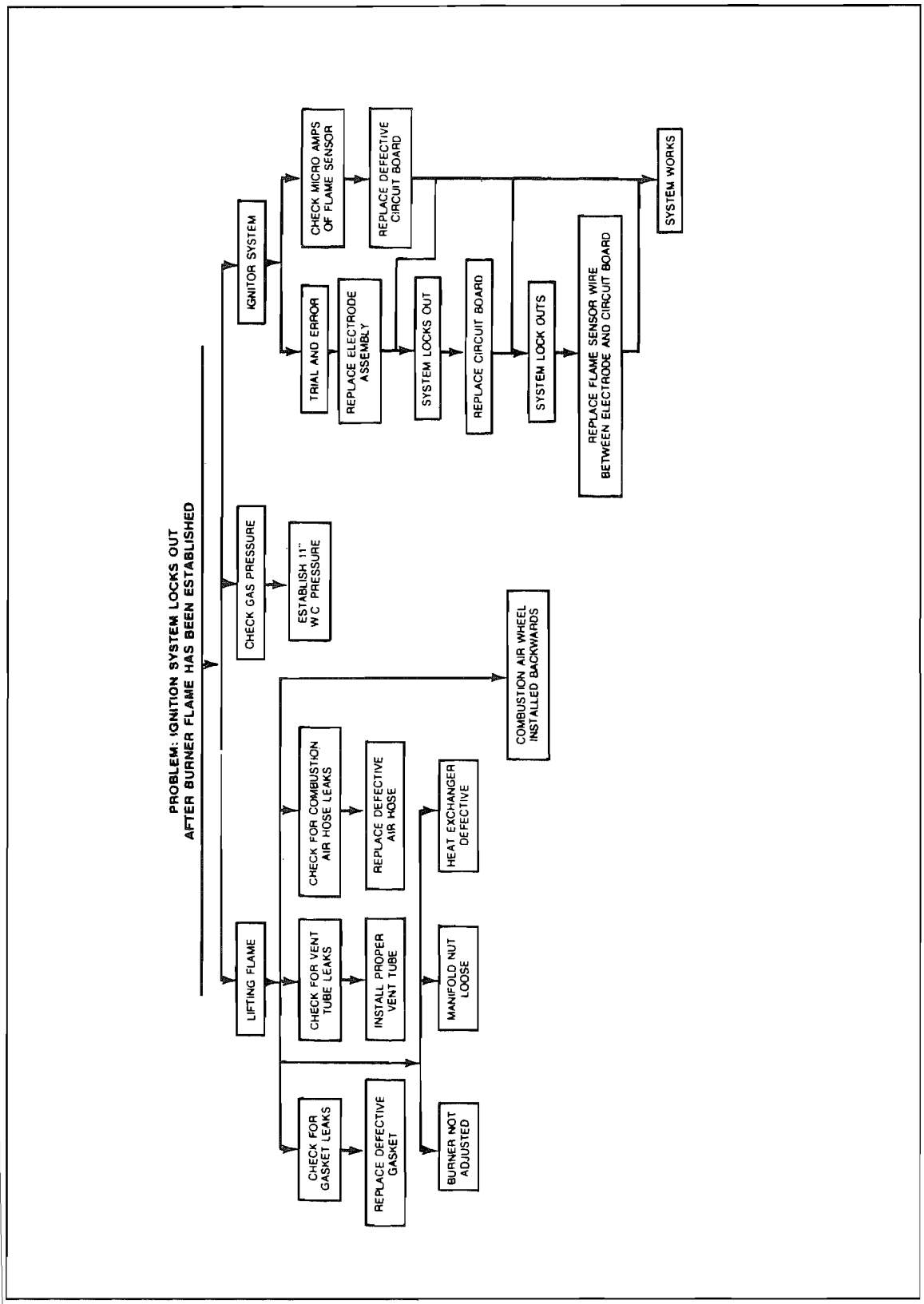
SERVICE CHART #1



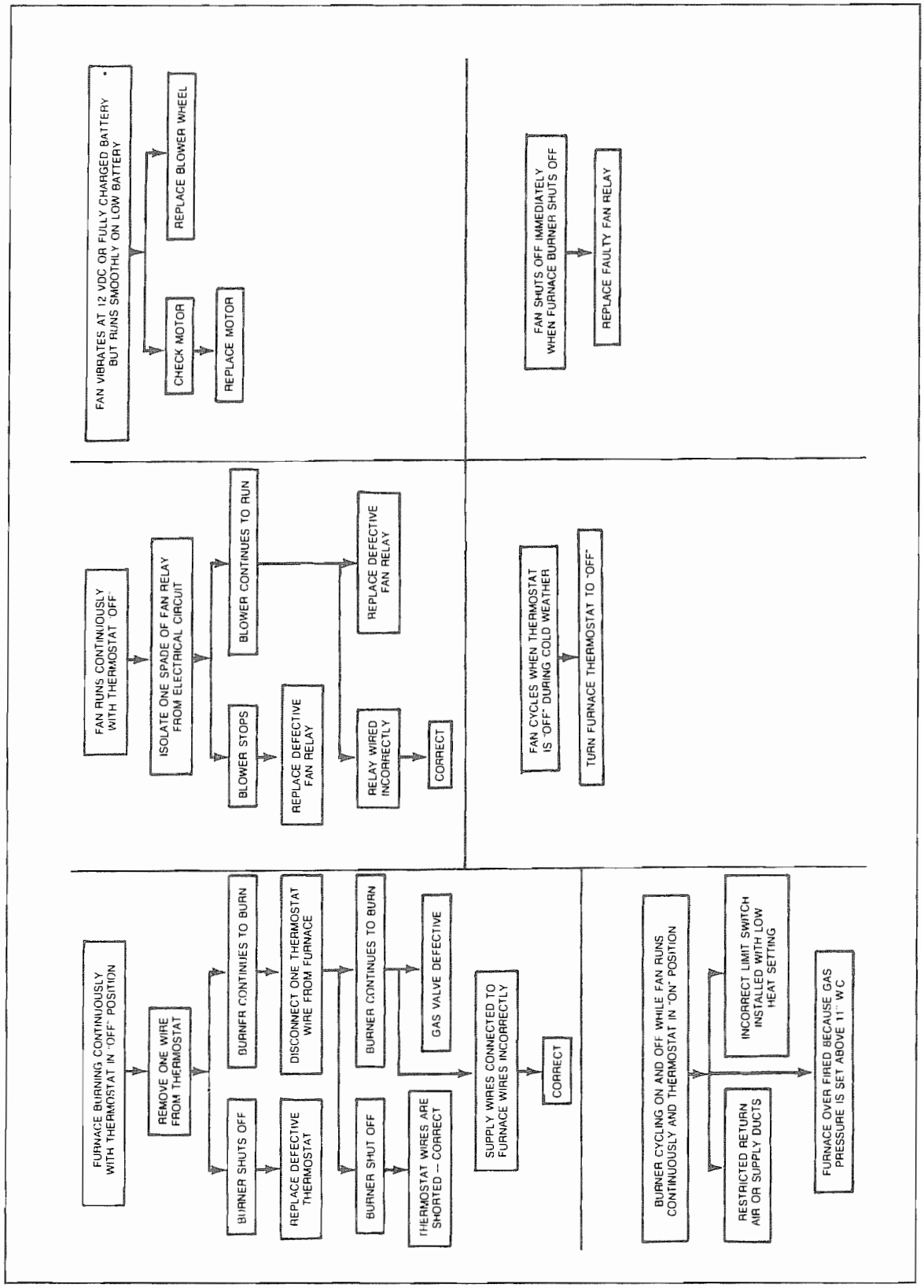
SERVICE CHART #2



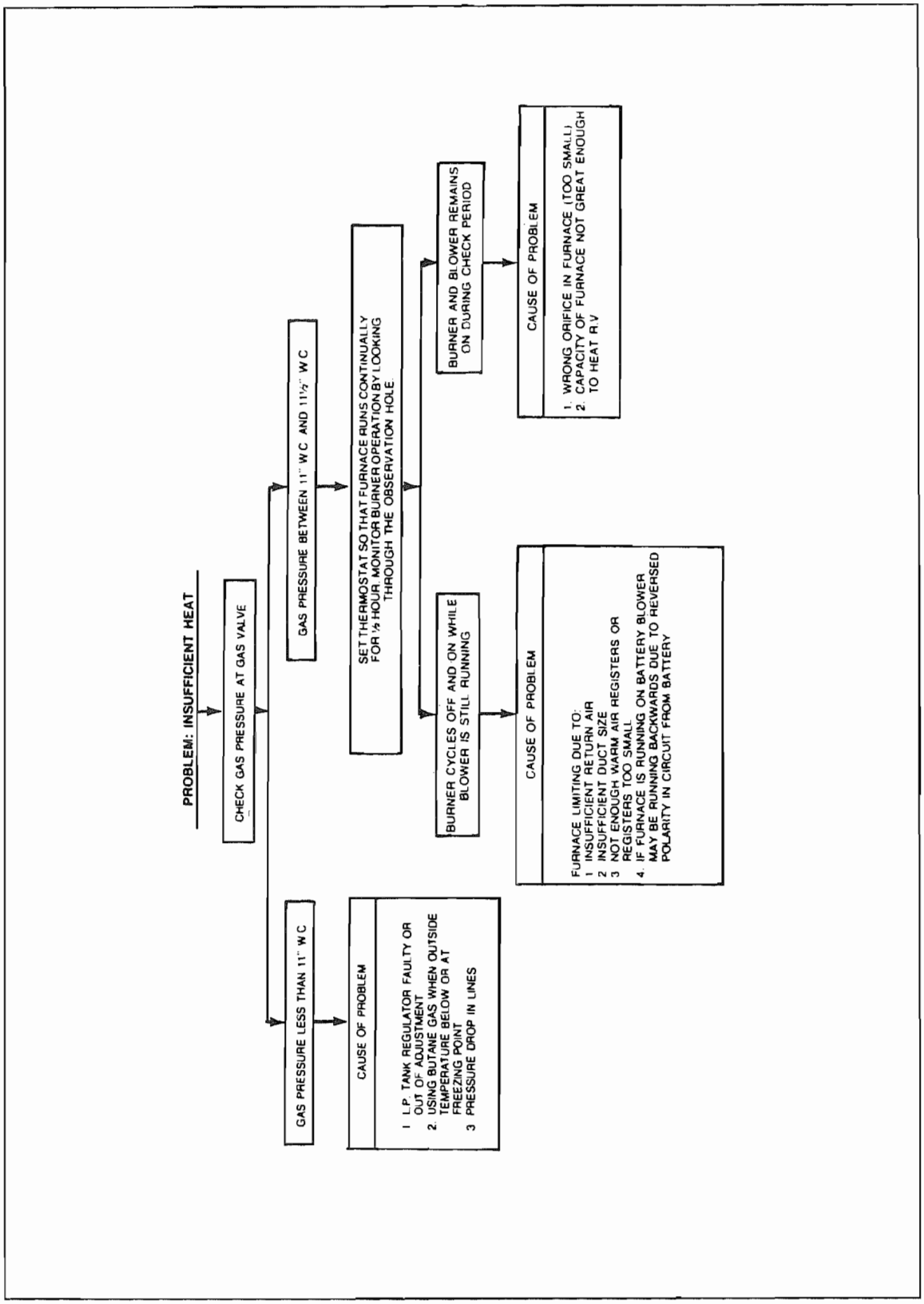
SERVICE CHART #3



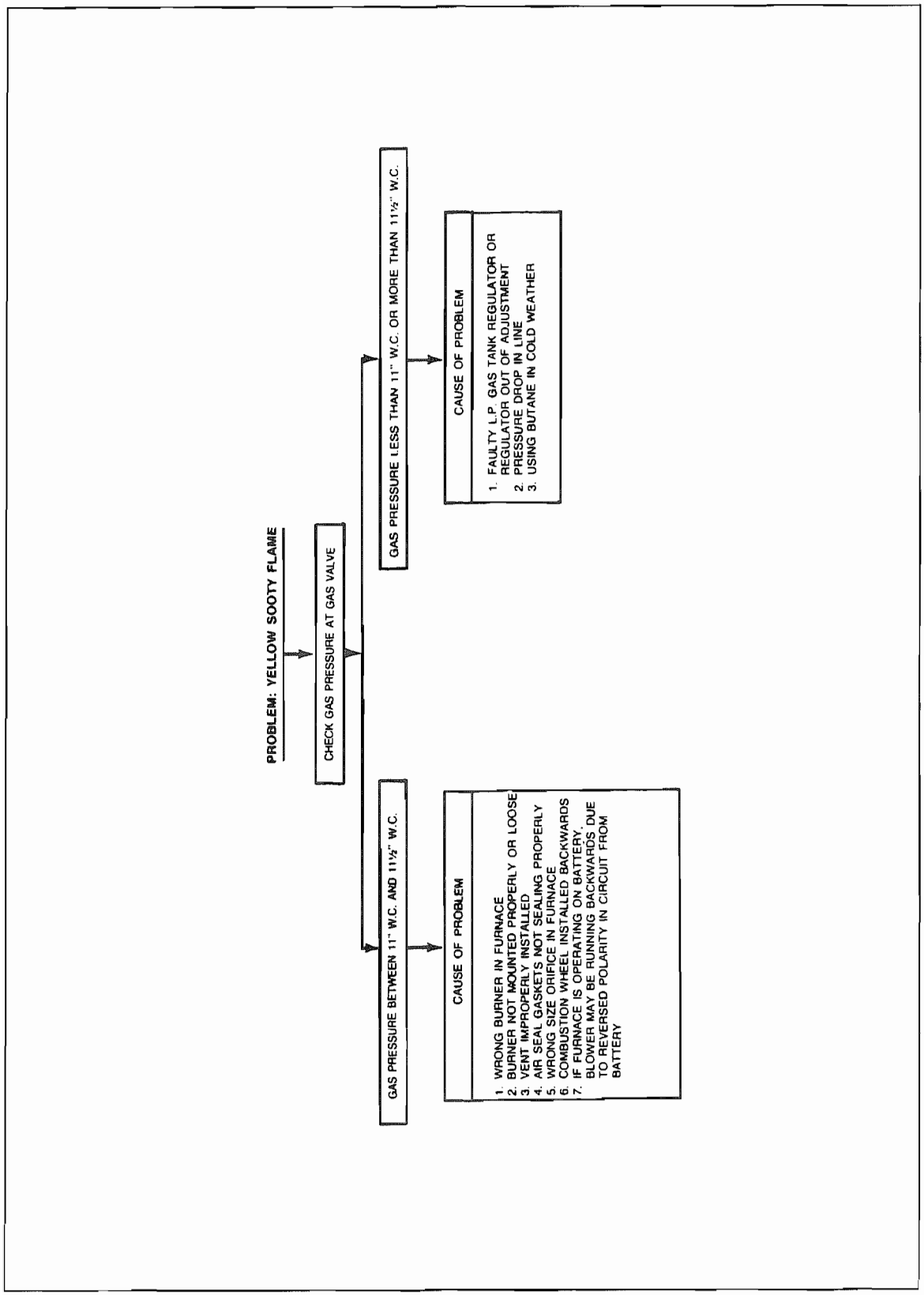
SERVICE CHART #4



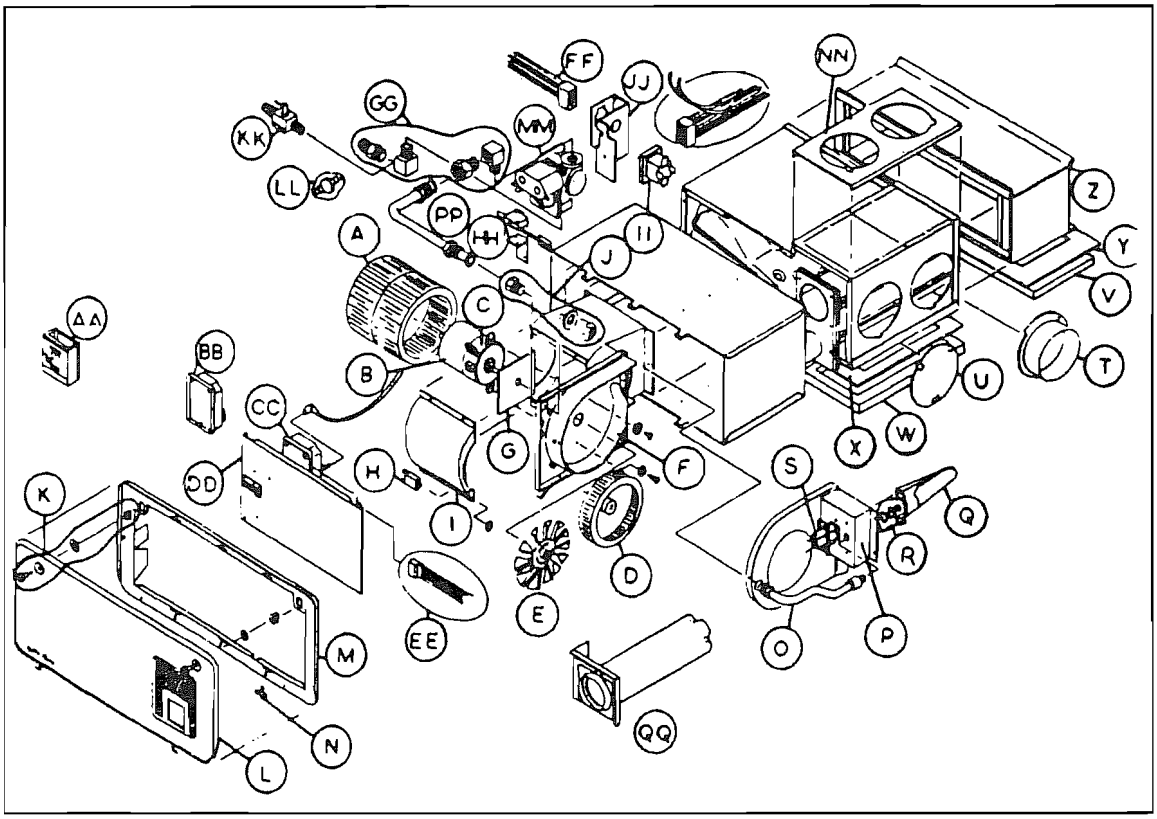
SERVICE CHART #5



SERVICE CHART #6



FURNACE PARTS LIST



A.	Blower Wheel	V.	Large Bottom Casket
B.	Motor	W.	Small Bottom Casket
C.	Motor Bracket Assembly	X.	Top Bottom Plenum Plate
D.	Combustion Wheel	Y.	Bottom Plenum Plate
F.	Motor Mounting Wall Assy	Z.	Bottom Extension Adapter
C.	Motor Casket	AA.	Thermostat
H.	Circuit Breaker	BB.	ITT 051 Board
l.	Blower Housing Back Cover	DD.	Electrical Panel Assy
J.	Motor Wall Brass Fitting	EE.	Electrical Panel Wiring Assy
K.	Door Catch and Latch Assy	F F.	Electrical Field Hookup
L.	Front Door Panel Assy	GG.	Valve Brass Fittings
M.	Outer Bezel Assy	HH.	Sail Switch Assy
N.	Door Hinge Clip (20	II.	Relay
O.	Manifold Right Side	JJ.	White/Roger Valve Bracket
P.	Burner box Assy	KK.	Brass Shut off 3/8 x 3/8
Q.	Burner Assy	LL.	Limit Switch
R.	Orifice and Manifold nut	MM.	White/Roger Valve
S.	Electrodes	NN.	Bottom Discharge Cover
T.	Duct Adapter	PP.	Manifold Left Side
II.	Duct Cover Plate	20.	Draft Cap Assy

REFRIGERATOR

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

The refrigerator in your motorhome is an absorption type that works on either 110 volt city power, LP gas or optional 12 volt. For proper operation the refrigerator should be close to level in order for the refrigerant to circulate properly. Long time RVer's will miss the small, round levels that used to come in each refrigerator. The cooling units have been redesigned and are not as sensitive to being level as they were in the past. As long as your motorhome is not noticeably off level, you're in good shape.

Operation instructions are in your Owner's Packet and by the refrigerator controls. The manufacturer can provide a detailed parts list along with a diagnostic guide.

When loading your refrigerator always allow some space between articles so the cold air can circulate properly. Before traveling make' sure all lids are securely on containers.

Make absolutely sure the refrigerator door is latched. It is not fun to clean up a mixture of eggs, jelly and leftover baked beans.

When storing the motorhome and the refrigerator is turned off, it is a good idea to leave the door partially open so air can circulate. The latch on the door has a storage position to secure the door slightly ajar.

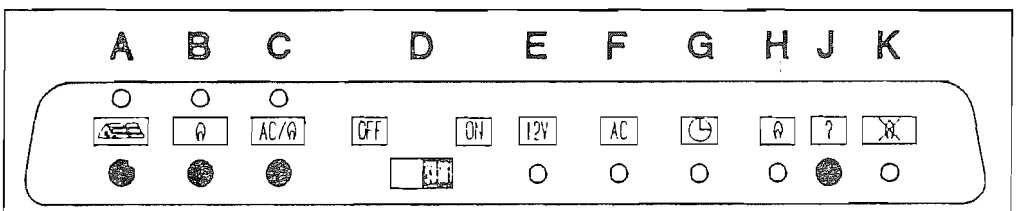


Fig. 11 AES control panel on refrigerator

INSTRUCTIONS FOR USE

How to start the refrigerator

Leveling

In an absorption refrigerant system ammonia is liquified in the finned condenser coil at the top 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 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 a pitching movement of the vehicle will pass to either side of level, keeping the liquid ammonia from accumulating in the evaporator tubing.

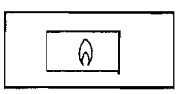
Operation (Fig. 11)

Before starting the refrigerator check the gas valve in the piping. Do not forget the valve on the rear of the refrigerator

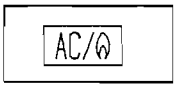
1. **To start the** refrigerator set the switch D to position ON. The lamp above push-button A will now turn green.
2. Turn the thermostat knob inside the cabinet to a suitable setting, e.g. •start with normal position.
3. **To shut off the refrigerator** set the switch D to position OFF.

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, 12 volt DC, or LP gas operation. The system can be set by the user to be fully automatic, or if desired, it can be set to limit operating modes to AC and LP gas only, or LP gas only.

Fully Automatic Mode
When switch D 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, arid if the vehicle engine is running, the refrigerator will operate on the 12 volt DC power being produced by the alternator on the engine. If neither 120 volt AC or 12 volt DC is 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 or 12 volt DC is available.



120 Volt AC and LP Gas Only
If push button C is pressed, the control system will select only between 120 volt AC and LP Gas operation. First priority is 120 volt AC, which means the refrigerator will operate in this mode whenever 120 volt AC is available.

Mode Indicator Lamps

At the right side of the AES control panel are 4 indicator lamps which give you information about the operation of the AES system: When the push button J is depressed one of the indicators will light up, showing which operating mode the system is using.

There is an additional indicator lamp 11 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).

12 Volt DC Operation

The refrigerator contains an additional heating element for use with 12 volt DC power, however, due to the high amperage draw (15 to 18 amps depending on model) it would not be practical to operate the refrigerator with only a 12 volt battery, unless the battery - is constantly being recharged. The AES system is therefore designed to switch to the 12 volt DC mode only when vehicle engine is running, and the battery has been charged to 13.3 volts or higher. If the battery supply voltage should drop below 11.6 volts (due to demands of other 12 volt devices in the vehicle) the 12 volt DC mode will shut off to protect the battery from further drain. After about 25 minutes the 12 volt DC model will resume again, provided the voltage is at least 13.3 volts. If the voltage is lower than 13.3 volts, the AES system will switch to LP gas operation.

The thermostat inside the refrigerator cabinet also controls power on and off the 12 volt heating element to maintain the desired temperature.

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).

If the vehicle engine is restarted during this delay period the 12 volt DC mode will resume operation and the delay period will be reset to 25 minutes. 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 D to OFF for several seconds, then back to ON, and the system will start operating in the LP Gas mode.

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.

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 D to OFF, and after the vehicle has been moved away from the refueling area set the switch back to ON.

LP Gas Operation

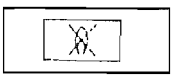
When there is no electrical power available (120 volt AC or 12 Volt DC or if the indicator lamp above push button B is lit, the AES system will switch to LP gas operation. When the thermostat in the refrigerator cabinet calls for cooling the following sequence takes pace:

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 a 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.



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 11 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, turn the main system switch D to OFF for 5 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 11 comes on, the mode indication lamp (green light) will go off, indicating that all operation has stopped. However, if 120 volt AC or 12 volt DC 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 indication lamp K will remain lit until there is an ON/OFF operation of the main system switch D.

Low Voltage Monitor on 12 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.

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 crispness. 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" from the top. 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 D 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 RM3804 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 D 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.

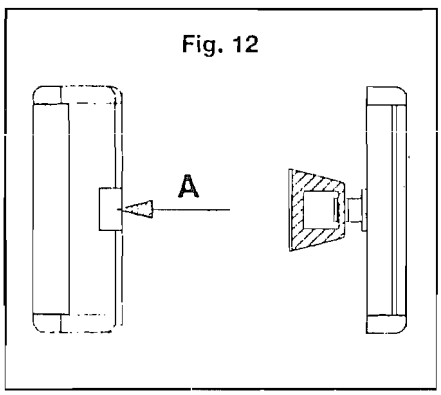


Fig. 12

CAUTION: Do not store explosive substances in the refrigerator, such as cigarette lighters, gas, petrol, either-or the like.

GAS EQUIPMENT

Flue Cap and Baffle

1. The flue cap on the top of the flue tube must be in position to guide the flue away from the condenser.

2. The flue baffle is suspended from the top of the flue tube and must be in position in the flue tube of the cooling unit.

The Flame Failure Safety Device (Fig. 13)

The tip of the thermocouple shall reach in over two slots of the burner. To replace the thermocouple proceed as follows:

1. Remove the cover.

2. Disconnect the thermocouple connection and pull the thermocouple straight out. (See Fig. 13)

3. Remove screw and retainer.

4 Remove the thermocouple by pulling it left, then outward.

5. Bend the new thermocouple to tie same shape as the old one.

-6. Reassemble in reverse order. Check that the tip of the thermocouple has been correctly refitted in relation to burner.

7. Tighten the thermocouple connection finger tight plus 1/4 turn. The plug must be properly tightened to the solenoid valve to ensure good contact. Do not over-tighten.

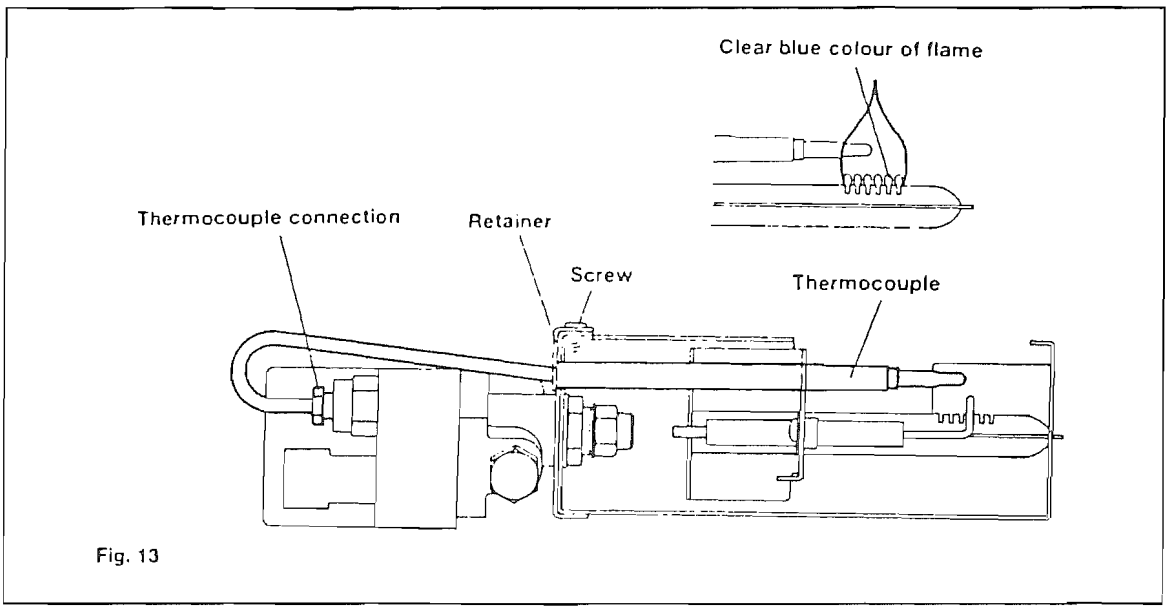


Fig. 13

The Thermostat knob (inside the cabinet)

The refrigerator is equipped with a thermostat which is regulated by turning the knob to different settings in order to obtain the desired cabinet temperature.

By choosing a setting from M IN to MAX various temperatures can be obtained. The closer to MAX the lower the temperature. As soon as the required cold temperature inside the cabinet is reached the thermostat cuts the burner. At MAX the burner is running continuously at full gas rate. Lowest cabinet and freezer temperatures are obtained at this setting.

ELECTRIC EQUIPMENT

Cartridge Heater

These models are equipped for both 120 volt AC and 12 volt DC operation. There is an electric heater mounted in a pocket of the boiler system. To Replace the Heater:

1. Disconnect the wall plug and the 12 volt wires.

2. Remove the cover.

3. Remove the cover item 19.

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 cover.

10. Reset the insulation and close the lid of the boiler.

11. Replace the cover.

PERIODIC MAINTENANCE

NOTE: Before working on the refrigerator make sure that 120 volt AC and 12 volt DC leads are disconnected. Shut off gas valve.

The Burner and the Burner Jet

The color of the flame shall be clear blue over the slots of the burner. Once or twice a year, depending on use, it is necessary to clean and adjust the burner assembly. Proceed as follows:

1. Remove cover.

2. Disconnect the electrode wire from the spark electrode.

3. Remove the two burner mounting screws, and remove the burner assembly.

4. Clean burner tube with a brush. Blow with compressed air.

5. Remove the burner jet item 48 and clean with alcohol. Blow with compressed air. Never use a wire or pin to clean the burner jet.

6. Reassemble.

7. Be careful that the end of the burner fits into the slot on the bracket. The slots of the burner must be centrally located under the flue tube.

The Electrode

For a proper ignition function it is necessary to keep the electrode insulation dry and free from dirt. The gap between burner tube and electrode shall be max 3/16" and min. 1/8".

WARNING: If the refrigerator is used intermittently it should be checked at least once a year. It is important to keep the appliance area clear and free from combustible materials, gasoline and other flammable vapors and liquids. Check the venting system. The flow of combustion and ventilating air must not be obstructed.

Check that the flue baffle is clean and reasonably free from soot. Heavy soot formation indicates improper functioning for the burner. Clean baffle and flue. Further, clean cooling unit and floor under the refrigerator. The entire gas installation should be checked for leaks at intervals. Test all pipe connections with soapy water, - not with an open flame.

Check the energy selector system by connecting/disconnecting main voltage, start/stop the engine etc.

FAULT TRACING

The Refrigerator Does Not Cool Properly

Causes and Remedies

A. Burner jet clogged. Unscrew burner jet and blow clear or wash in alcohol. Do not use a wire or pin to clean the burner jet.

B. Flame has gone out. Remedy: 1. Gas in bottles used up. 2. Tip of thermocouple is not heated enough by flame. 3. Clogged by pass screw. Clean or exchange it.

C. Air circulation around cooling unit is restricted. Be sure that the refrigerator is properly ventilated.

D. The evaporator is heavily coated with frost. Defrost.

E. Flue baffle not in flue tube.

F. The thermostat is incorrectly used. See paragraph on thermostat. In hot weather the setting should be closer to MAX than usual.

G. Burner head clogged. Clean.

H. Burner damage. Replace.

I. Burner not located under center of flue tube. Relocate.

J. Wrong gas pressure at the burner. Have pressure checked at burner and at gas bottle.

Pressure at burner must not fall below 11" W.C.

ODOR FROM FUMES

Causes and Remedies

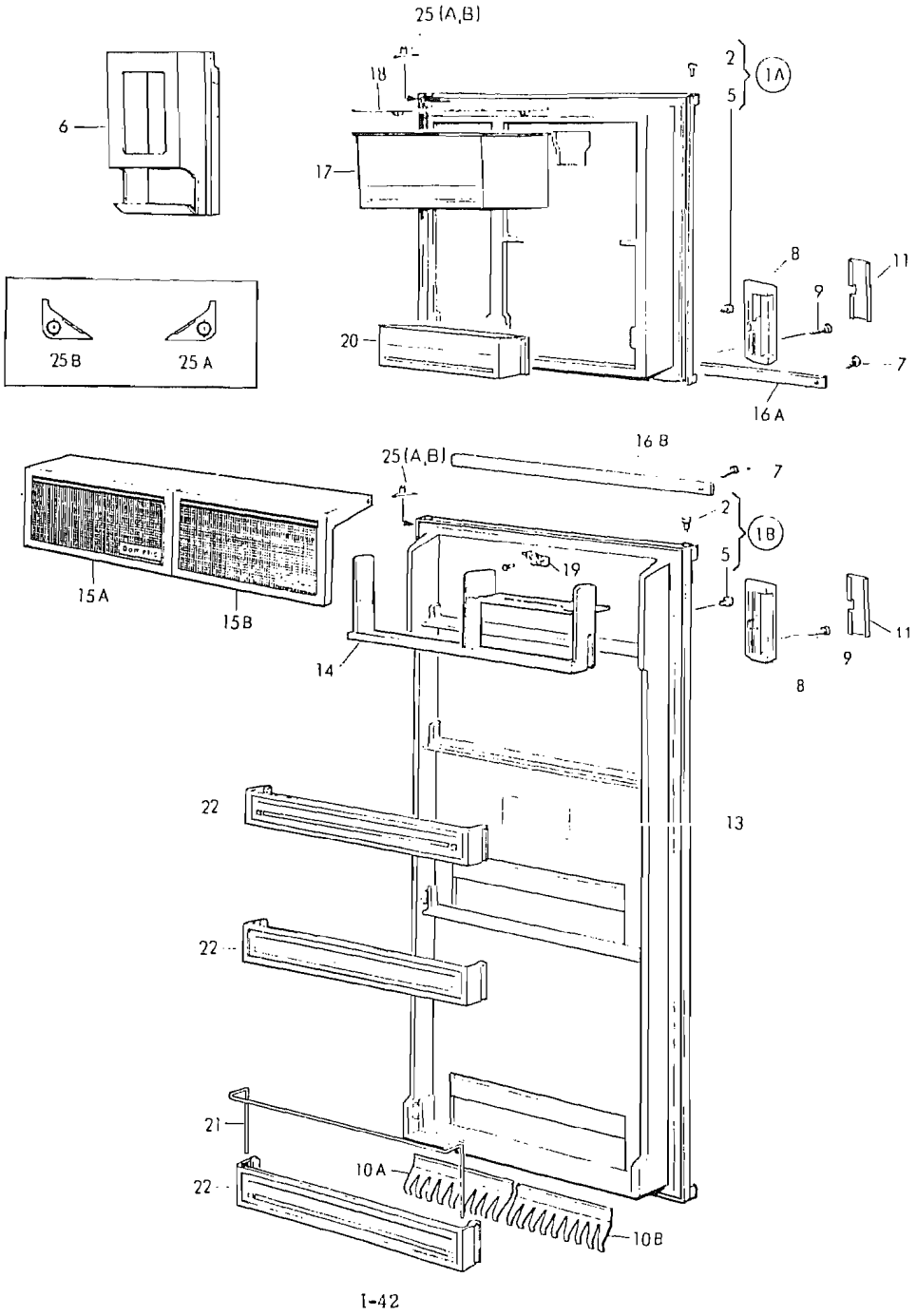
A. The flame touches side of the boiler due to dislocation of the burner. Relocate. Burner dislocation may also cause smoke and discoloring of walls and ceiling.

B. Burner damaged. Replace.

C. The flue tube is dirty. Clean flue as follows: Cover burner and jet. Remove the flue cap from the top of the flue tube, and lift out the flue baffle. Clean the flue from the top using a flue brush. Clean baffle before putting back in place.

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.

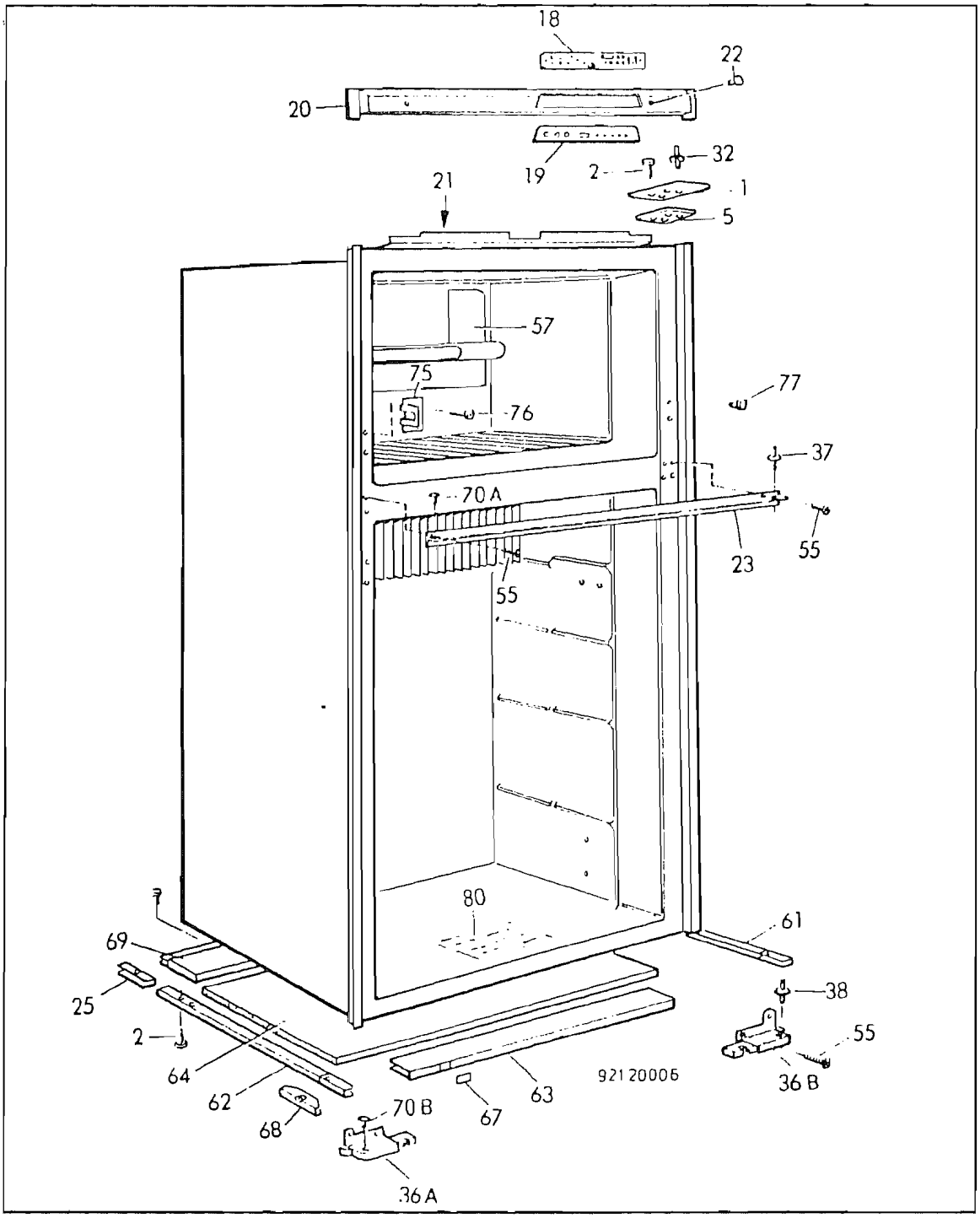
DOMETIC Model RM 3804



I-42

PARTS DESCRIPTION PRECEDING PAGE

1A	Door, upper
1B	Door, lower
2	Bushing
5	Plug
6	Retainer
7	Screw
8	Handle
9	Screw
10A	Holder Bottle approx 7 1/2
10B	Holder bottle approx 8"
11	Coverplate
13	Label
14	Shelf
15A	Cover butter compartment
1 5B	Cover butter compartment Dairy
16A	Strip decoration
16B	Strip decoration
17	Box
18	Lid
19	Flap bracket
20	Shelf door
21	Rack
22	Shelf door
25A	Washer
25B	Washer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70 B
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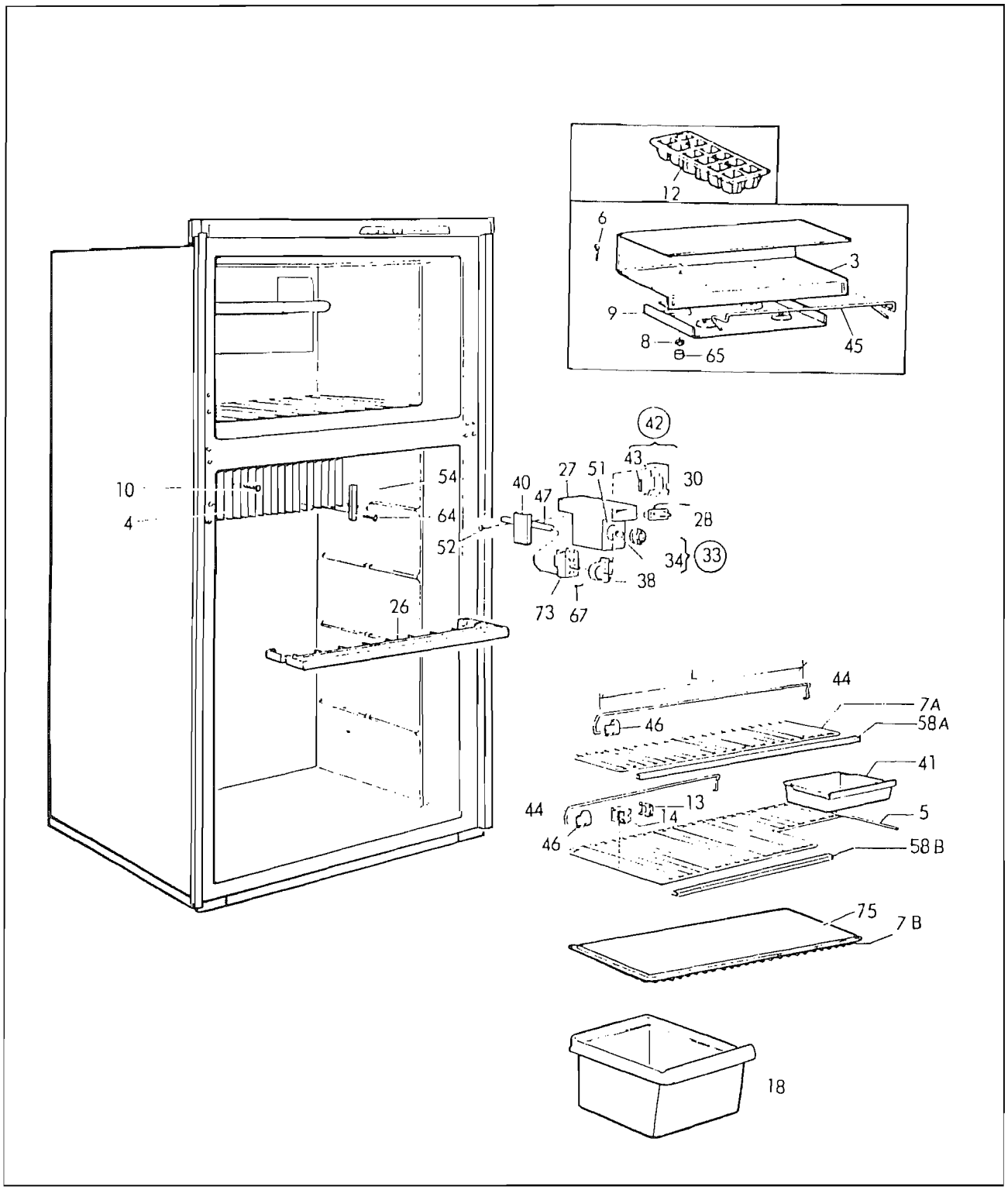
36 B
36 A
92120006

PARTS DESCRIPTION PRECEDING PAGE

1.	Hinge upper
2.	Screw
5	Washer
18.	Printed (“assembly)
19.	Operating Panel
20.	Front
21.	Label
22.	Plug
23.	Center beam
25.	Reinforcement
32.	Hinge pin, upper
36A.	Hinge, lower left
36B.	Hinge, lower right
37.	Hinge pin, middle
38.	Hinge pin, lower
55.	Screw
57.	Plate cover
61.	Runner, right
62.	Runner, left
63.	Base front
64.	Isolation
67.	Coverplate
68.	Reinforcement
69.	Protection Plate
70A	Plug, light grey
70B.	Plug, dark grey
75.	Bracket
76.	Screw
77.	Plug
80.	Sign plate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7A
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58A
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58B
75
7B
18

PARTS DESCRIPTION PRECEDING PAGE

3.	Shelf
4.	Cooling flange
5.	Shelf
6.	Screw
7A	Shelf approx 7.5"
7B	Shelf, approx 12"
8.	Nut
9.	Plate
10.	Screw
12.	Ice tray
13.	Shelf lock, outer
14.	Shelf lock, inner
18.	Box vegetable
26.	Drip tray
27.	Cover
28.	Switch door
30.	Conductor
33.	Knob
34.	Spring
38.	Support thermostat
40.	Lamp screen
41.	Box
42.	Lighting
43.	Lamp, 10w, 12V
44.	Rack,L
45.	Rack
46.	Retainer
47.	Cover
51.	Index
52.	Screw
54.	Clamp
58A	Strip decoration
58B	Strip decoration
64.	Screw
65.	Lid
67.	Locking pin
73.	Thermostat
75.	Shelf

NOTES

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 by the 12 volt oven light in some models.

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

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 motorhome and the climate in which most motorhomes are used. The pilots are very small, but of course, produce heat that may be noticeable in the motorhome. 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 in 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 (l) 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 newer 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 "pilots 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 350 degrees, 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)

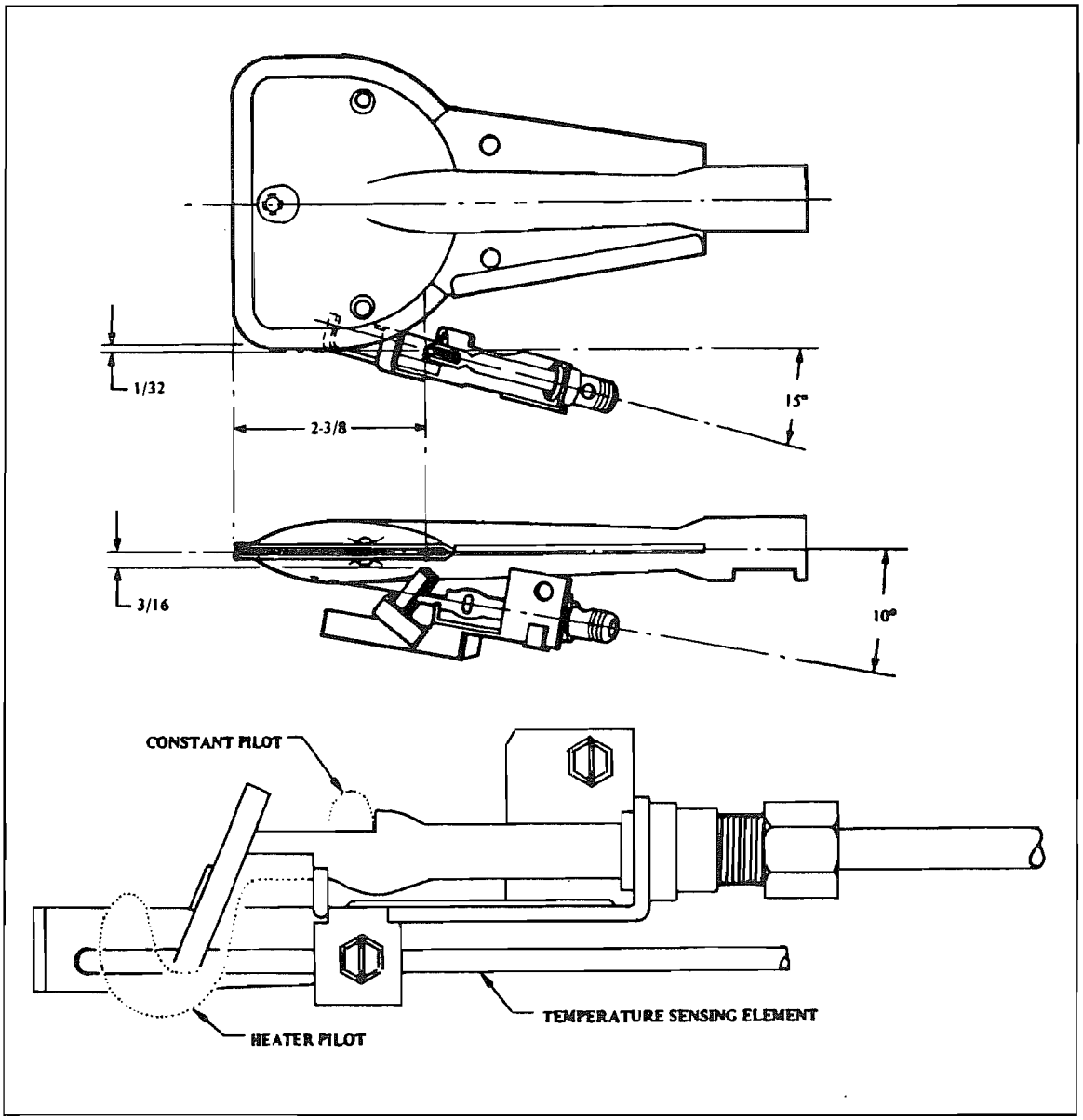
The possibility that a service call on the top burner portion of the range will require anything more than minor adjustments and/or cleaning is very remote.

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.

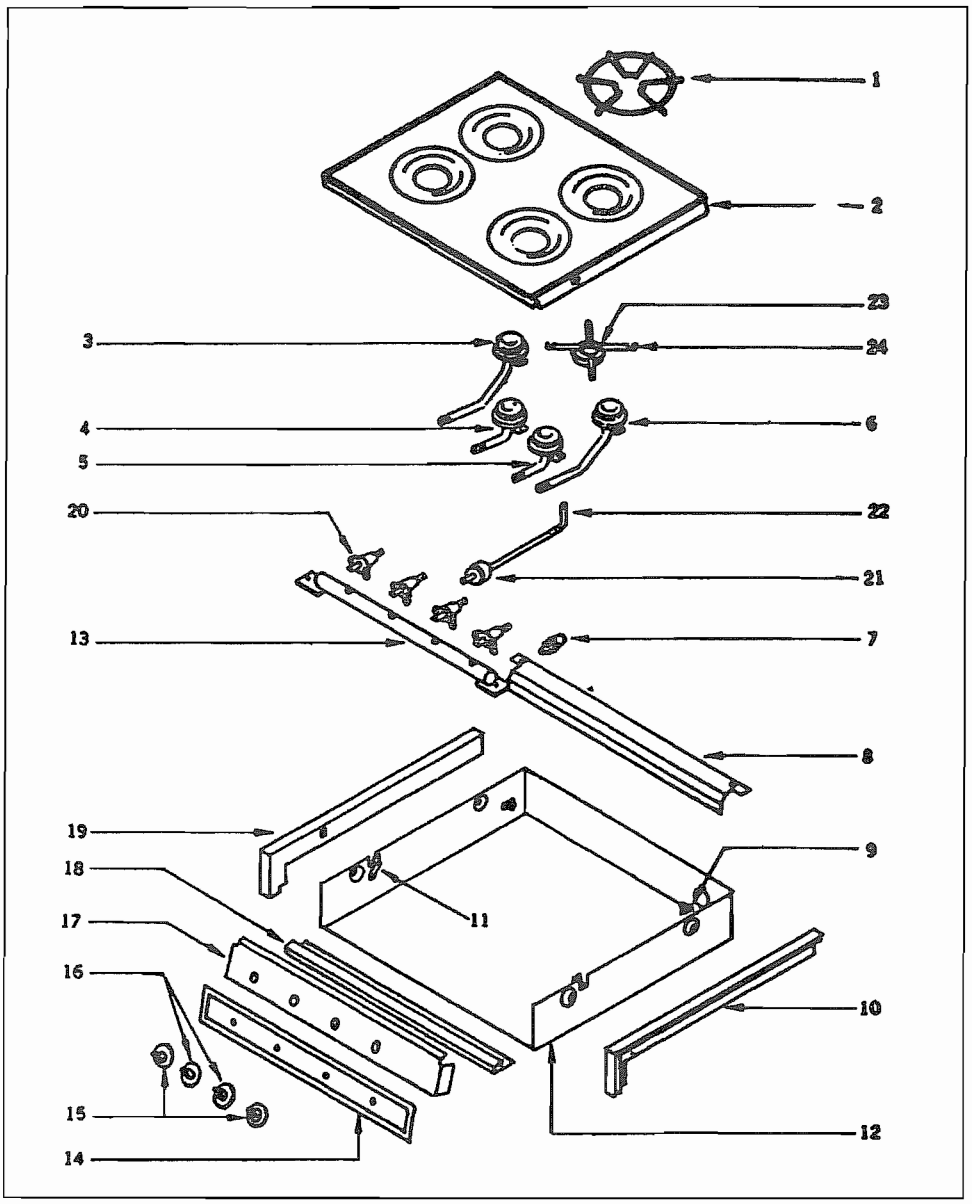
(Pilot Adjustment)

On models ordered from the factory with top burner pilots, these pilots may need to be checked in cases of (1) 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

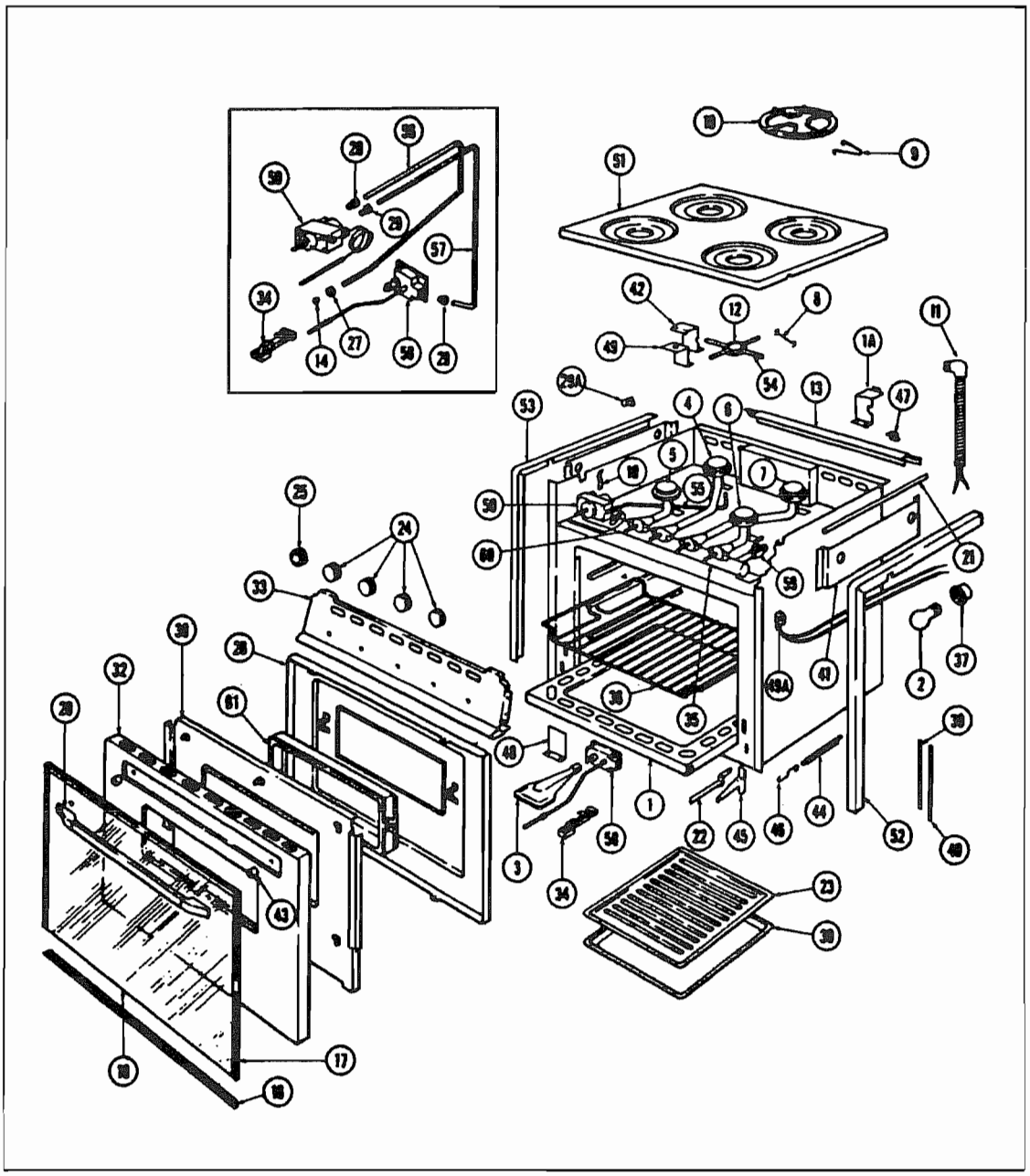


RANGE TOP



1. Burner grate
2. Main top
3. Burner, Left Rear
4. Rubner, 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



PARTS DESCRIPTION FOR PRECEDING PAGE

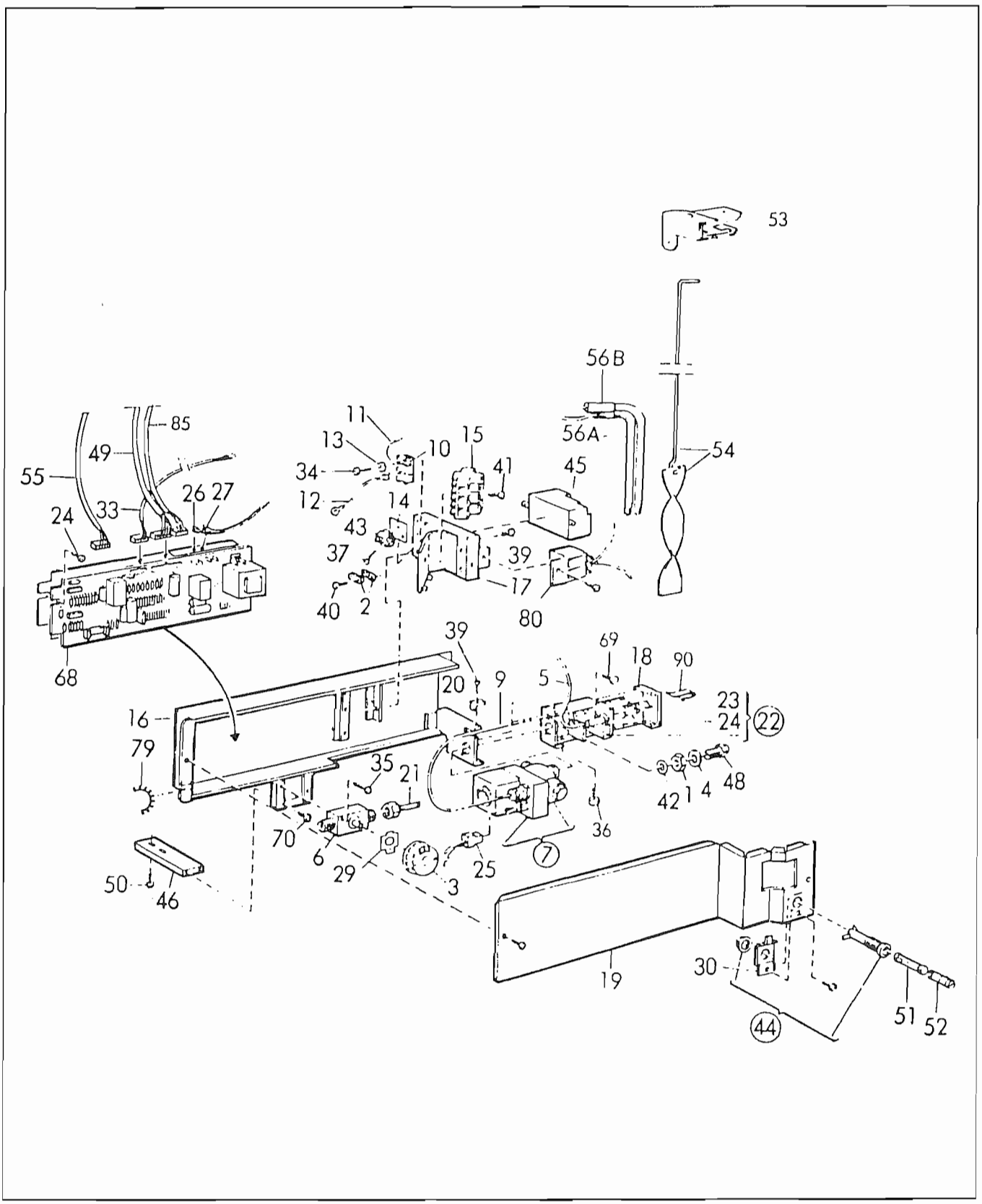
1. Bottom, oven
1A. Junction box
2. Bulb, oven light
3. Burner, Oven
4. Burner Top, left rear
5. Burner Top, left front
6. Burner Top, right front
7. Burner top, right rear
   Button, plug (not shown)
8. Clip, flashtube
9. Clip, grate
10. Clip, main top
    Clip, thermostat bulb (not shown)
11. Conduit assembly and service cord
12. Cup, lighter assembly
13. Deflector, flue shown)
14. Ferrule - 1/8" fitting
    Thermostat-inlet (not shown)
16. Frame, lower glass shown)
17. Frame, upper glass
18. Glass, outside
19. Grates, top
20. Handle oven door
21. Harness, tube oven light
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 technicians specifically trained and equipped for servicing microwave ovens should work on your unit.

The microwave information provided with your coach will provide you with a list of service facilities, or the manufacturer's phone number to obtain this information.

NOTES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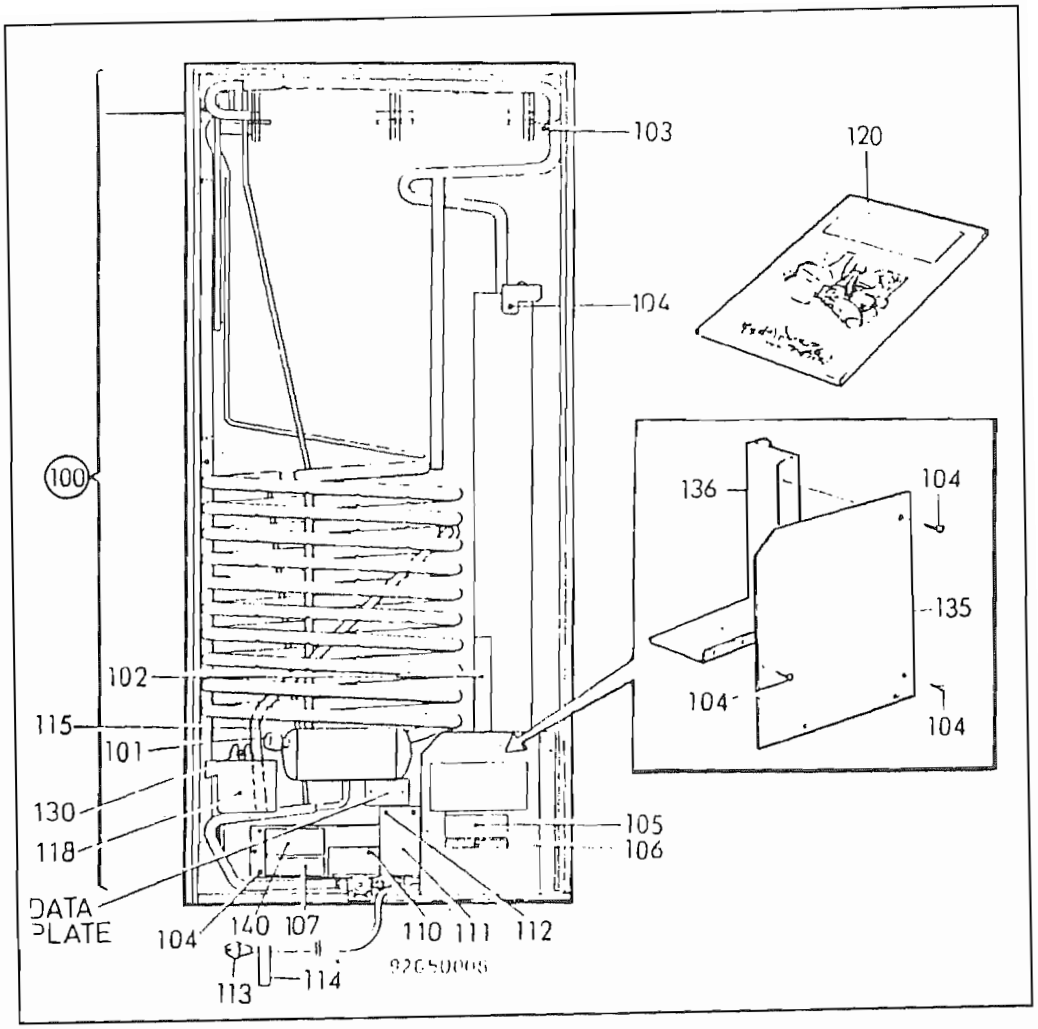
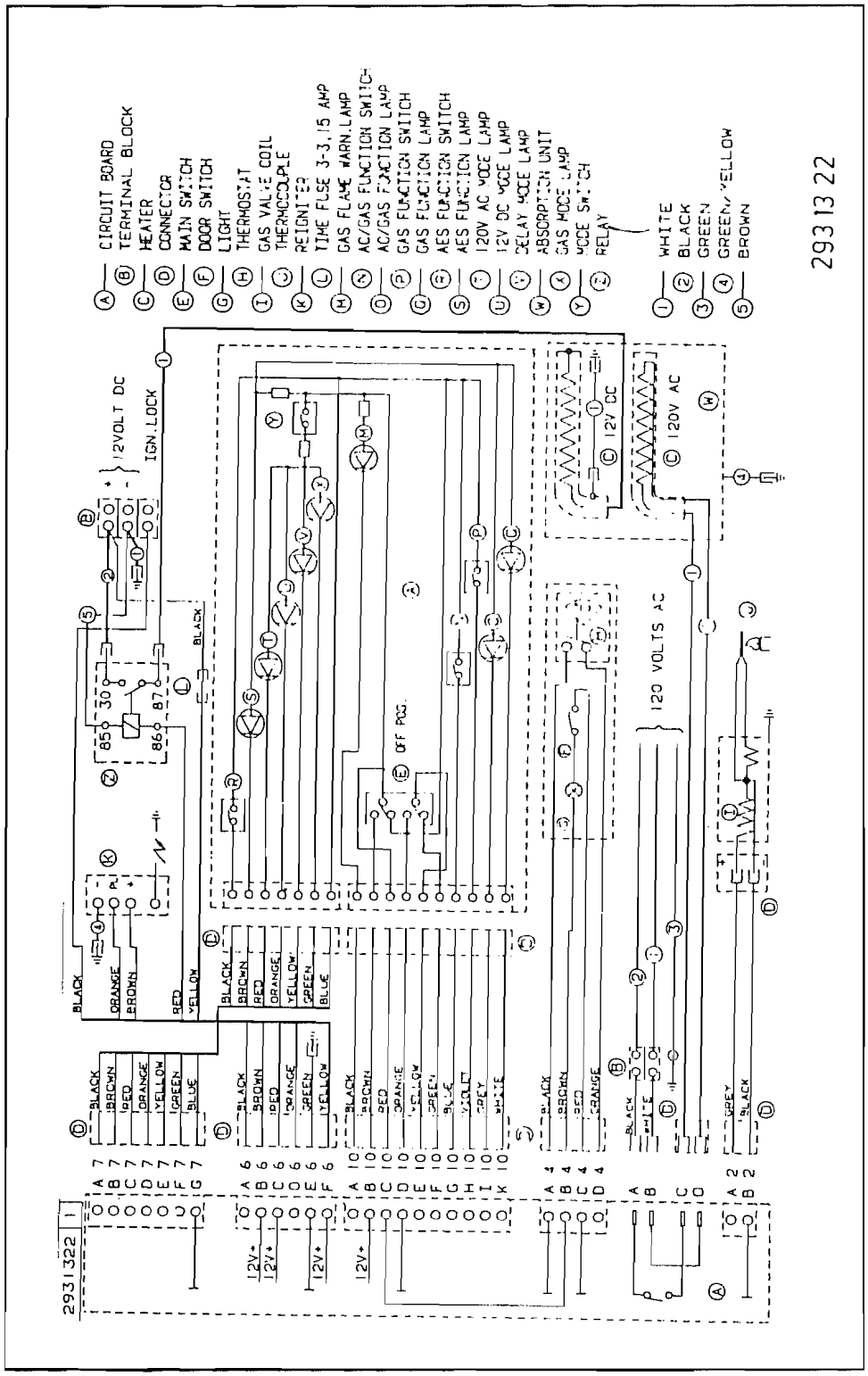
PARTS DESCRIPTION PRECEDING PAGE

1. Nut
2. Anti-strain clip
3. Knob
4. Washer
5. Conductor
6. Cock gas
7. Valve solenoid
9. Thermocouple
10. Terminal rail
11. Conductor, cpl
12. Conductor
13. Washer
14. Insulating plate
15. Terminal block
16. Box
17. Mounting plate
18. Burner housing
19. Lid
20. Retainer
21. Tube gas
22. Burner
23. Electrode
24. Screw
25. Conductor, cpl
26. Conductor, cpl
27. Conductor, cpl
29. Protect washer
30. Retainer
33. Conductor, cpl
33. Conductor, cpl
34. Screw
35. Screw
36. Screw
37. Screw
39. Screw
40. Screw
41. Screw
42. Washer
43. Terminal block
44. Retainer fuse
45. Spark ignition device
46. Retainer
48. Jet
49. Conductor
50. Screw
51. Fuse
52. Insert
53. Flue
54. Baffle
55. Conductor, cpl
56. Immersion heater
68. Printed assembly
69. Screw
70. Screw
79. Strip
80. Relay
85. Conductor
90. Clips



100. Cooling unit
101. Cap
102. Flap
103. Screw
104. Screw
105. Sign plate
106. Sign plate
107. Label
110. Label
111. Protection
112. Screw
113. Cord set
114. Label
115. Hose
118. Evaporation tray
120. Instructions for use
130. Screw
135. Protection plate
136. Protection plate
140. Label



PRODUCT NO.	MODEL	MARKET	VOLTAGE	REMARKS
921 60 01-01	RM3804	US, CA	120V, 12V	2931322-00
92160 02-01	RM3804	US, CA	120V	293132100

NOTES

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 1 20°F) its contacts close and completes 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 you 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 these two quarts of water freeze, it has ample room for expansion without causing freezing damage.

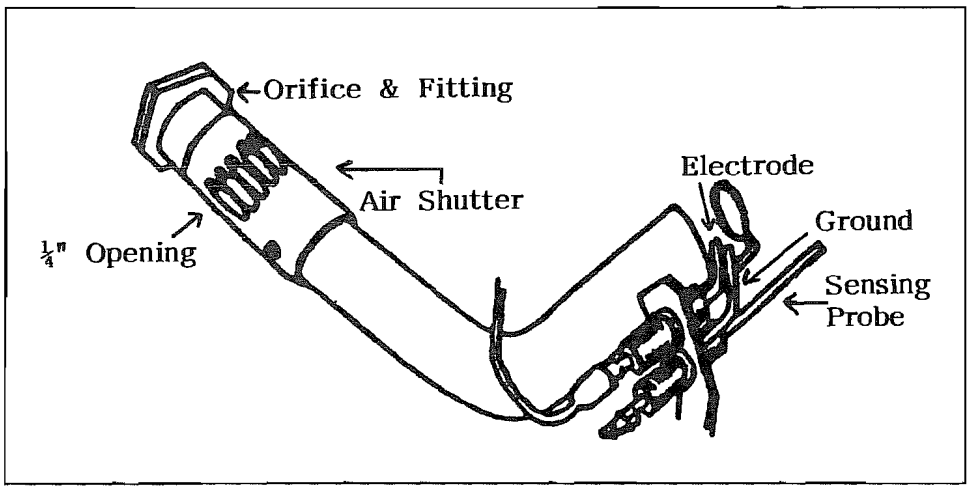
Adjustment for Direct Ignition Water Heater

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 such 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 unit's 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; also, the female connector on the white wire. If the water heater initially starts up, 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

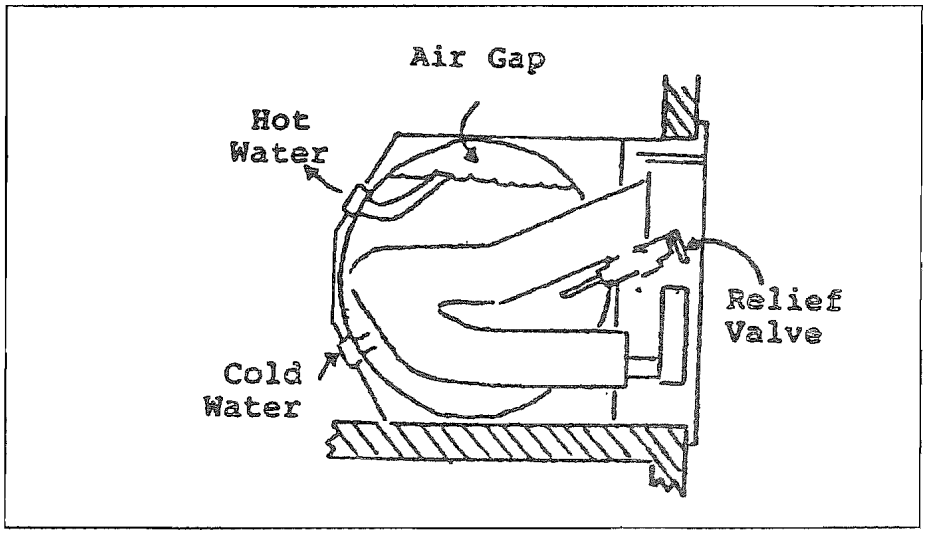
General Test

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:

1. Turn off water heater.
9. Turn off incoming water supply.
3. Open a faucet in the coach.
4. Pull handle of P & T valve straight out and allow water to flow until it stops.
5. 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 direct to batten. Battery must produce at least 10V 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 12V 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.

E. Gas solenoid bracket bent. Orifice not pointed up center of main burner.

Problem: Tank leaks water.

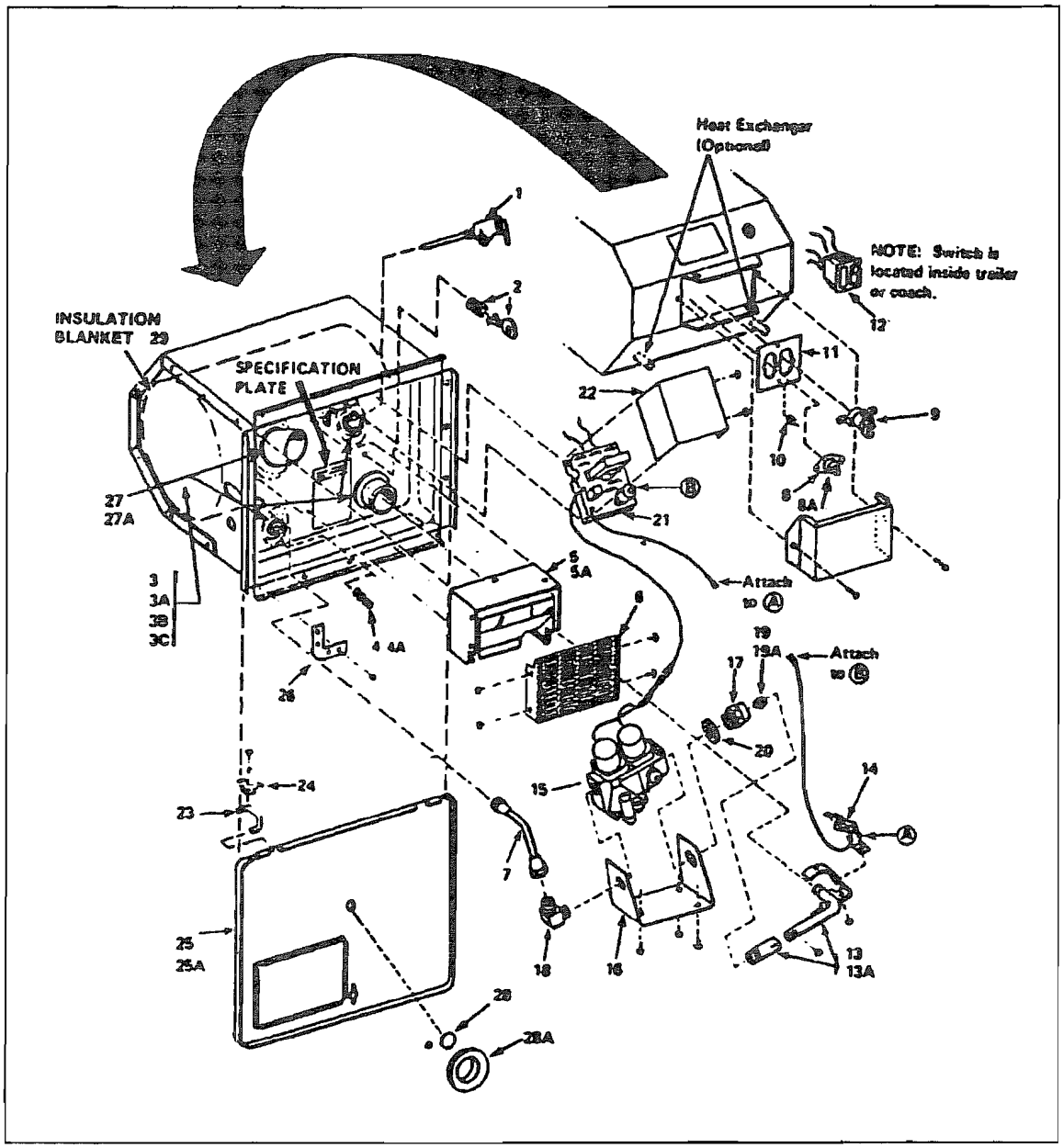
Remedy: A. Check all plumbing fittings for leaks.

B. Tank Corrosion. Refer to warranty with unit.

Problem: Spark igniter continues to spark while burner is on.

Remedy: A. Flame sensor not correctly positioned in flame.

PARTS DESCRIPTION WATER HEATER MODEL G6A-4E



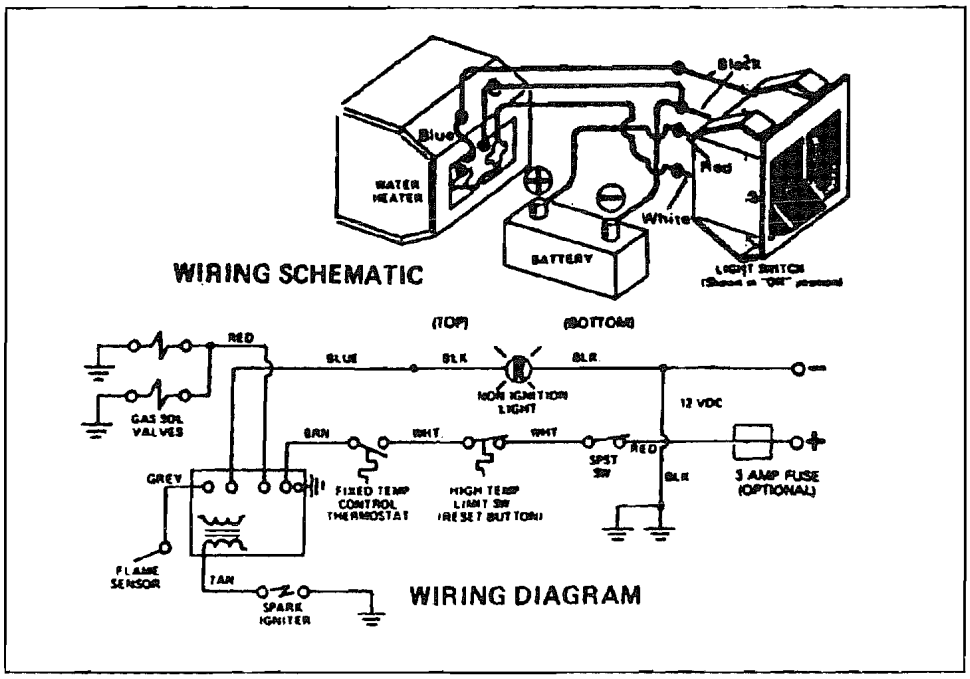
PARTS DESCRIPTION FOR PRECEDING PAGE

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: Kool-O-Matic
1831 Terminal Road
Niles. Michigan 49120
Phone: 616-683-2600

The optional Kool-O-Matic vent system is designed to quickly exhaust stale, hot air and draw in fresh air. It is great to use when the outside temperature really doesn't call for air conditioning, but has built up in your motorhome.

There are three positions shown on the wall mounted control: OFF, ON and AUTO. Before turning on make sure the "winter" cover, held in place magnetically, has been removed from the vent louvers.

In the ON position the fan will run whenever current is available. The AUTO position makes use of the temperature control. In AUTO the fan will only come on when the temperature setting is reached. When the motorhome is cooled lower than the setting, the fan will shut off automatically until the temperature rises again. The AUTO setting is especially useful as a bedtime setting.

A control knob for adjusting the speed of the fan is located in the vent grille.

The only maintenance would be to occasionally wipe the vent grille off with any household type cleaner.

NOTES

SPECIFICATIONS

Airstream constantly strives to improve its product. All specifications are subject to change without notice. Each vehicle comes with a one-year limited warranty.

	30 FT	33 FT	36 FT
DIMENSIONS			
Exterior Height with Air Conditioner	122"	122"	122"
Interior Head Room	79"	79"	79"
Interior Width	90"	90"	90"
Exterior Length	31'6"	33'	36'
CAPACITIES			
LPG Tank	80 lbs.	80 lbs.	125 lbs.
Fresh Water Tank	60 Gal.	*80 Gal.-D	80 Gal.-D
		60 Gal.-T	60 Gal.-T
Grey Water Holding Tank	38 Gal.	43 Gal.	43 Gal.
Black Water Holding Tank	30	45 Gal.	45 Gal.
Fuel Tank	60 Gal.	60 Gal.	80 Gal.
CHASSIS COMPONENTS			
Wheel Base	208"	178" w/tag	208" w/tag
Rear End Ratio	4.63	4.63	4.63
Gross Vehicle Weight Rating (Maximum Carrying Capacity)	16,000 lbs.	17,000 lbs.	18,000 lbs.
Front Air Bags, Chevrolet	70 psi	70 psi	70 psi
Rear Air Bags, Airstream	†See Note	Controlled by leveling valve	
Tire Pressure, Front	70 psi	70 psi	70psi
Tire Pressure, Rear	70 psi	60 psi	60 psi
Tire Pressure, Tag	—	60 psi	60 psi
Tire Size	8:00-19.5	8:00-19.5	8:00-19.5

* D=Double bed
  T=Twin bed

†Note - The rear air bags on the 30 ft. model are for trimming - any pressure from 20 psi to 100 psi may be used and can be varied side to side.

NOTES