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# SPORTSMOBILE MANUAL

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1998

# SPORTSMOBILE INDEX

• Please refer to manufacturers literature for items not included in manual.

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## MANUFACTURER SUPPLIED APPLIANCES/OPTIONS

### GENERAL

Appliances and some options are supplied to Sportsmobile by outside manufactures. Warranty cards must be completed and mailed as the various manufacturers instruct. Note: Some serial numbers may not be visible after the item is installed. Should you have a problem and the item is still under warranty, Sportsmobile's invoice to you will suffice as to purchase date proof.

### SPORTSMOBILE HAS REWRITTEN SOME OPERATING INSTRUCTIONS

1.) WARNING: THESE SHEETS ARE TO BE CONSIDERED ONLY AS SUPPLEMENTS TO THE MANUFACTURERS LITERATURE NOT REPLACEMENTS. 2.) IT IS IMPORTANT THAT YOU READ AND UNDERSTAND ALL OF THE MANUFACTURERS LITERATURE BEFORE OPERATING ANY OF THESE ITEMS. SOMETIMES A SUPPLIER WILL CHANGE INFORMATION AND NOT ADVISE SPORTSMOBILE. 3.) BE SURE TO CAREFULLY REVIEW THE MANUFACTURERS INFORMATION TO BE CERTAIN THERE IS NOT AN INFORMATION CONFLICT. SHOULD THERE BE ANY CONFLICT WITH SPORTSMOBILE SHEETS - FOLLOW THE MANUFACTURERS INSTRUCTIONS.

### SERVICE

1. All appliances and options used by Sportsmobile are name brand and have been used by Sportsmobile for many years. Almost any RV service center can service them. Please see the Yellow Pages in larger cities.
2. Some suppliers include a listing of service centers in their literature that are approved for warranty work. Some also list phone numbers you can call if you have a question, problem, need to know the closest approved service center, etc.
3. Supplier phone numbers:
  - NORCOLD REFRIGERATORS: Model DE-351 (2CF), Model DE-541 (4CF)... Phone 800-543-1219
  - DOMETIC REFRIGERATORS: Model RM 2202 (2CF), Model RM 2453 (4CF)... Phone 800-544-4881
  - SUBURBAN FURNACE, PROPANE: Model NT-12... Phone 615-775-2131
  - SUBURBAN WATER HEATER, PROPANE: Model SW6D... Phone 614-775-2131
  - SHURFLO WATER PUMP: Model 200-210-39... Phone 800-854-3218
  - ONAN GENERATOR, 2.8 KW: Consult the yellow pages, or call 800-888-ONAN. For additional information see back side of generator sheet this manual.
  - POWER CONVERTER/BATTERY CHARGER: Model PD 9155, Progressive Dynamics... Phone 616-781-4241
  - EXTRA BATTERY, THERMOIL: Model 1427... Phone 800-697-9505
  - INVERTER, TRACE ENGINEERING: Model M1512... Phone 360-435-8826
4. We are confident that you will find all of our suppliers to be most cooperative. However, should you feel you are not being taken care of properly, call Sportsmobile.
5. The literature that is supplied by the manufacturers is included in a separate envelope.
6. The Owners Manual for the van is supplied by the van manufacturer. WARNING - read and understand this material before driving the van.

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NHTSA - 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 Sportsmobile.

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 Sportsmobile.

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

## SAFETY - ALWAYS PRACTICE IT!

**SAFETY CANNOT BE OVER STRESSED** - Prior to operating the Sportsmobile be certain you understand all of the information and instructions provided by Sportsmobile, the manufacturer of certain appliances and, the van manufacturer.

ALSO...

**GAS AND ELECTRICAL** - If repairs are necessary, enlist the services of a qualified technician.

**WARNING LABELS** - Observe all safety labels inside and outside the Sportsmobile.

### BEFORE DRIVING

1. Turn "off" 30 amp main circuit breaker, disconnect the 110V power cord and hoses.
2. Turn propane master valve "off". This is a law in some states. If you have a 3-way refrigerator switch to 12V.
3. **WARNING** - "All" loose items must be safely secured or stowed, so that in the event of a crash stop these items don't become flying missiles. Such as: tables, cargo, sink covers, porta potti and TV.
4. **WARNING** - Lock Penthouse Top down.
5. Lock doors when children are present.

### WHEN DRIVING

1. Do not use the stove, toilet or beds.
2. Captain seats must face forward with the seat back upright.
3. Seats that do not have seat belts should not be used when driving. These are non-designated seating positions.
4. You should be buckled-up at all times.

### EMERGENCY STOPPING SAFETY

1. Carry road flares and/or reflective triangular highway warning devices.
2. Pull off the roadway as far as possible when changing flats or for other emergency situations.
3. Turn on your vans hazard warning flashers when parked along side a roadway, even if only for a few minutes.

### FIRE SAFETY

To continue the excellent record for fire safety exhibited among Sportsmobile owners, it is recommended that you follow these safety suggestions:

1. Establish good housekeeping practices. Do not allow combustible materials to accumulate. Be sure that flammable liquids are stored in approved containers in a well ventilated space. Do not stow items around the Power Converter.
2. Avoid the use of flammable solvents or products containing these solvents within the van.
3. Do not smoke in bed. Do not overload electrical wiring. Do not leave food cooking unattended. Do not permit children to play with the controls of LP-gas or electrical appliances. Do not use matches or other open flame to check for LP-gas leaks.
4. If a fire does start, get all members of your party outside. If it is a small fire, use the fire extinguisher. If the fire cannot be extinguished quickly, get out of the van. Close the LP-gas service valves on the tank if possible. Call the fire department and stay a safe distance from the vehicle.
5. Test detectors according to manufactures instructions.

### THE VAN

1. Read and understand all of the operating and safety instructions provided by the van chassis manufacturer.
2. Don't overload - by doing so you can adversely affect handling and/or towing safety.
3. Tires - insure they are in good condition and are properly inflated. Under inflated tires run hotter and are more apt to blow out. Check and tighten wheel lugs regularly. See the driver's side door post for proper inflation. Rotate tires as recommended in the chassis owner's manual.

## MISCELLANEOUS INFORMATION

**SPORTSMOBILE FLYERS** - We are including some Sportsmobile flyers, in the back of this manual. These can be given to anyone who expresses an interest in your Sportsmobile. This may be more convenient for you than having to answer a lot of questions when you are busy watching the birds, contemplating life, etc. If the person is interested they can write us and we will send them our literature package. Should you run out please let us know - we will be very happy to send more.

**LIGHTS** - All lights are 12V. The bulbs are hot to the touch when on. Hi/Lo lights use "type 221-1" bulbs. To remove the light cover, squeeze the sides of the cover together, pull the cover off after the lips of the cover release. Swivel lights use "Lamp #1141" bulbs.

**CAB LIGHTS** - The dome light comes on when a van cab, side, or rear door is opened. The two aircraft lights have individual switches. For light to come on when a door is opened, switch by light must be on.

**TV BATTERY DISCHARGE** - Some TVs can discharge the extra battery at the rate of about 6 amps per day. If you do not have a separate cut-off switch you can pull the 12V plug from its receptacle.

**RADIO SWITCH** - Switch should be to "main" battery when not using radio while parked. Van starting battery could discharge if switch is on "extra" battery too long.

**SPARE TIRE LOCKS** - Keys will be attached to your van's keys, for the spare tire and continental tire cover locks. A separate wrench is included (the van's lug wrench will not fit the tire lock nut).

**AWNING** - The crank out awning can easily be operated by one person. Do not crank the awning out more than 18" before dropping the support legs down. If you go further than 18" the weight of the awning could bend the steel support brackets.

**PROPANE TANK** - When the propane level is very low, it is possible for the pressure relief valve to let some LP fuel leak. Check the propane gauge. If the propane is low, have the LP tank refilled, and check for leaks to ensure proper and safe operation. If LP gas appliances are going to be used at high altitudes and in cold climates, the LP gas in your tank may need to be replaced with a different blend designed for higher altitude and cooler climates.

**UPHOLSTERY BUTTONS** - Used to hold trim panels, door panels, etc. in place. Easily snap off with the end of a screw driver. You will then have access to Phillips head mounting screw.

**PETS** - If you are using a generator to run your A/C to keep them cool, keep in mind there could be a failure. We suggest you keep some windows partially open just in case.

**FRESH WATER SYSTEM** - When connected to city water hookup, water pump switch should be off. To fill your water tank - connect to city water hookup. Turn valve "on" by water tank. When full, turn valve "off". Only turn this valve on when you need to fill your tank. You can also fill the fresh water tank with the short hose and funnel provided.

**SHADES** - Due to the nature of the pleated shade design, pleats at the bottom will be fuller than those at the top. To maintain the crispness of the pleats, pleated shades should be raised on a regular basis and left in raised position as long as possible. Use care when lowering or raising the shades as they can easily be damaged. Shades are not covered in the warranty. Option.

**SHADE ADJUSTMENT** - If the pleated shades have a tendency to lower while driving, remove the bottom track, slide the plastic cover to one side exposing the strings and spring. Shorten the length of the strings to increase spring tension, reassemble and replace. If the top track of the pleated shade comes unlatched from its clips, reinstall it by twisting it into the latches. If it continues to unlatch itself, replace the mounting brackets. Call Sportsmobile and we will send them to you. The top track can be shifted to the left or right to maintain a level pleat while raising or lowering the shade.



**FUEL INJECTED ENGINES** - Engines build up a lot of heat when driving. To quickly dissipate this heat and help keep it from entering the Sportsmobile, we suggest you open the van's hood when you stop at the campground.

**STOVE LID RATTLE** - To prevent the lid from rattling we suggest you place a dish towel over the burners before closing the lid - it is a good place to let the towel dry at the same time.

**DETECTOR, CARBON MONOXIDE** - Alarm will "beep" intermittently and red light will flash if Extra Battery becomes discharged.

**DETECTOR** - Alarms can be set off by such items as smog, cleaners, polishers, hair spray, porta potti chemicals, etc.

**DIRT DOBBERS** - Can plug water tank drains, Starcool A/C water drain, furnace vent and other exterior openings. Operate these items to verify there is no restriction. Clean as needed.

**GENERATOR SHUT DOWN** - Generator is designed to shut down (run out of gas) when the vehicle fuel level drops to approximately 1/4 tank. Add fuel to vehicle fuel tank to resume operation.

**VAN REAR WINDOWS** - Should always be closed when driving or running a generator.

**PORTA POTTI** - There is a handle on the back side of the bottom section. If the Porta Potti fits into it's storage cabinet length wise, it's easier to slide the Porta Potti out by using the handle. Most people find they can go a week or so before they need to empty it. That is if they only use it primarily at night. Many owners empty it when they are entering or leaving a park. Of course with a Porta Potti you can empty it into any flush toilet. You may find that the top section needs to be filled with fresh water every two weeks or so.

**RV CAMPING/TRAVEL INFORMATION** - There are many sources. See the travel section of the larger book stores. They have maps, RV campground guides, travel books, etc. Also visit your library. There are two monthly publications devoted to RV travel and camping. They are seldom seen in magazine racks, so you might like to subscribe. Trailer Life (about \$15.00 per year) P.O. Box 52088 Boulder, Co. 80321-2088 and Motor Home. (about \$14.00 per year) P.O. Box 51644 Boulder, Co. 80321-1644. We also recommend you call 1-800-234-3450 for free information on the Good Sam Club.

**MANUFACTURERS LITERATURE** - To keep everything organized and handy, we suggest you also keep all of the various manufacturers literature in the pockets of this 3-ring binder. Many Sportsmobile owners say they keep the Owners Manual in the map pocket on the back of the drivers captain seat. This way it is always convenient to get to for reference.

**RV CATALOG** - The "Camping World" catalog is the most comprehensive RV catalog available. You can get a free copy by calling 1-800-626-5944. The catalog will also include the addresses of their stores.

## PENTHOUSE

### TO ELEVATE

1. Unlock front and rear latches.
2. Open a door or window to relieve air pressure.
3. Push up using front handles. Note: Be sure the front 2 hold down "J" hooks are clear of the front sidewalls, as the hooks could damage the sidewalls when the top is raised.
4. **WARNING:** Do not operate the top if you have a neck, back or some other physical problem as it could aggravate your condition.

### TO LOWER

1. Close front flap and vinyl side windows. If you do not close the front flap one of the "J" hooks could damage the front screen the next time you raise the top.
2. Open a window or door to relieve air pressure.
3. Pull down. Do not pull down too fast, as this will cause the sidewalls to "balloon" out.
4. Note: Stop the top when it is about half way down. "Bump" the front corners forward. This will cause the front side walls to fold forward and look neater, please see photos below.
5. Lock front and rear latches.
6. **WARNING:** Lock top down before driving.

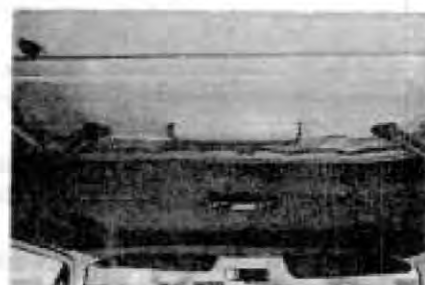
### TOP DOES NOT LINE UP IN VAN DRIP RAILS WHEN DOWN

1. If you are not parked on level ground, the top will pull to the lower side. To compensate, pull the top slightly to the opposite side when lowering. Or, you can push the top into the drip rail after it is lowered and before it is locked down.
2. The top "floats" on the dual U-tubes inside the upholstered compartments that are bolted through the roof. Over time the top can slowly work its way over to one side or the other. To correct this, have one person raise and hold the top about 12" up. Have a second person from outside the van push the top over to the opposite side. By some trial and error the top can be realigned with the van drip rails.

### TO OPERATE THE TOP WHEN THE OPTIONAL BED IS INCLUDED

#### FOLLOW THE INSTRUCTIONS ABOVE, EXCEPT

1. To elevate the top - first unhook both the front and rear bed hooks. This will lessen the weight of the top and make it easier to raise.
2. To hook the bed to the ceiling - First, raise the front end of the bed and hook the two hooks to the bed. Then raise the rear of the bed and hook it.
3. To lower the bed - when it is hooked to the ceiling when the top is up. First, unhook the rear of the bed and carefully lower to the bottom support rails. Then unhook the front and lower.
4. The bed can be slid to the front or rear of the top opening.
5. To lower the top - unhook bed "rear" only. Leave the front of the bed hooked to the ceiling. The weight of the front of the bed will make it easier to lower the top.
6. **WARNING:** Use care when climbing up or down.



RB VANS - When lowering the top, stop half way down and push out the front corners of the sidewalls with your fist. This will cause the sidewalls to fold neatly when the top is all the way down.

## SEATS/BED

### GAUCHO & SOFA

#### TO MAKE SEAT INTO A BED

1. Release handles on each side of back cushion.
2. Flip back cushion over into bed position. Lower support legs each end.
3. Sometimes the back cushion may not drop down level with the set cushion. If this happens slightly shift the "back cushion" to the left or right so that the "flip over bar" will clear a bolt head and then drop level.

#### TO MAKE BED INTO SEAT

1. Reverse the above steps.
2. **WARNING** - Seat belts may slide between seat cushion and wall. If so, pull seat belts up into position for use.

#### TO REMOVE "SEAT" CUSHION

1. Two wing nuts secure the front corners of seat cushion to the steel frame. Remove the wing nuts by opening the door under the seat and reaching up under the front corner of each side. Remove the wing nut each side. Lift the seat cushion up to clear bolts then slide cushion out. This will permit full access from above to water tank and other items installed under the seat.

#### TO REMOVE "BACK" CUSHION

1. Remove four wing nuts that secure back cushion to frame.
2. By removing the back cushion from the Gaucho and setting it aside, you can have a single bed and add to your open floor area.

### WARNING - BUCKLE-UP

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### DINETTE

#### TO MAKE SEATS INTO BED

1. Release back cushion top restrainer straps.
2. Raise seat cushion front up several inches and slide out.
3. Drop back cushion into position between seat cushion and van wall.

#### TO MAKE BED INTO SEAT

1. Grasp strap sewn to bottom of back cushion. Pull cushion up.
2. Raise seat cushion front up several inches and slide back.
3. Secure back cushion top straps to tops of steel supports.

### SEAT BELTS

1. If a seat is not equipped with a seat belt this seating positions is not a designated seating position for travel.
2. **WARNING** - Seat belts may slide between cushion and wall. If so, pull up into position for use.

### STORAGE ACCESS

1. Swing seat cushion up.
2. Raise support rod to hold seat cushion up for easy storage access.

**WARNING** - Secure both seat backs when traveling. Buckle up.

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### CAPTAIN SEATS

1. To slide fore/aft - pull lever under left front corner of seat cushion to release slider lock.
2. To swivel seat - slide seat all way forward. Move seat back to upright position, then unlock swivel by pulling lever on side of seat base.
3. **WARNING** - Seat backs must be upright and facing forward when traveling. Buckle up.



## EXTERIOR FINISH CARE

### "CUSTOM PAINT" - CUSTOM STRIPES, FIBERGLASS TOPS & RUNNING BOARDS

1. To permit the automotive acrylic enamel paint to "cure out", you should not wax or polish the custom paint for 30 days.
2. Your custom paint has a clear hardener coat applied over the custom paint. To help preserve the beauty of your van's finish, we suggest you wash your van with cool water and a mild detergent. The paint codes for the custom paint are listed on the drivers side door post.
3. For the vans base paint color care - please see the vans owners manual. Base van color touch-up paint is available from your local dealer.

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### PROTECT THE FINISH

1. Waxing is recommended 2 to 4 times a year. It helps protect the fiberglass surface from normal, common elements.
2. Many over-the-counter auto waxes are available for this application. Check the product for use & application.
3. **WARNING - DO NOT WAX IN DIRECT SUNLIGHT!**

### "GELCOATED SURFACES" - FIBERGLASS TOPS & RUNNING BOARDS

1. If the fiberglass part is white or off white, most likely the white color is in the gelcoat and the top has not been painted.
2. The following information was supplied by the Viking Company in Indiana. Viking is one of the two companies that supply fiberglass tops and running boards to Sportmobile.

### WHY MUST I DO ANYTHING TO PROTECT THIS GELCOATED SURFACE?

1. Most all colored gelcoat and painted surfaces have the tendency to be attacked by the ultra violet rays of the sun. The result of the attack is color fading, yellowing and/or a dull chalky look.
2. There is also the possibility of stains from contact with various chemical products. A simple maintenance plan can help greatly in reducing these problems.

### WHAT SHOULD I WATCH FOR?

1. Be aware of what you have subjected the fiberglass to. If salt, for example, has collected on the surface it is wise to remove it as soon as possible. Road tar can leave a stain if left for a long period of time.
2. Remember, if it's bad for your vehicle, it's likely to be bad for the fiberglass part.

### HOW SHOULD I CLEAN IT?

1. Use mild biodegradable soap and warm water to clean the fiberglass surface. Dry thoroughly with a clean soft cloth. Do not use abrasive or solvent based cleansers.

### TO PROTECT THE FINISH

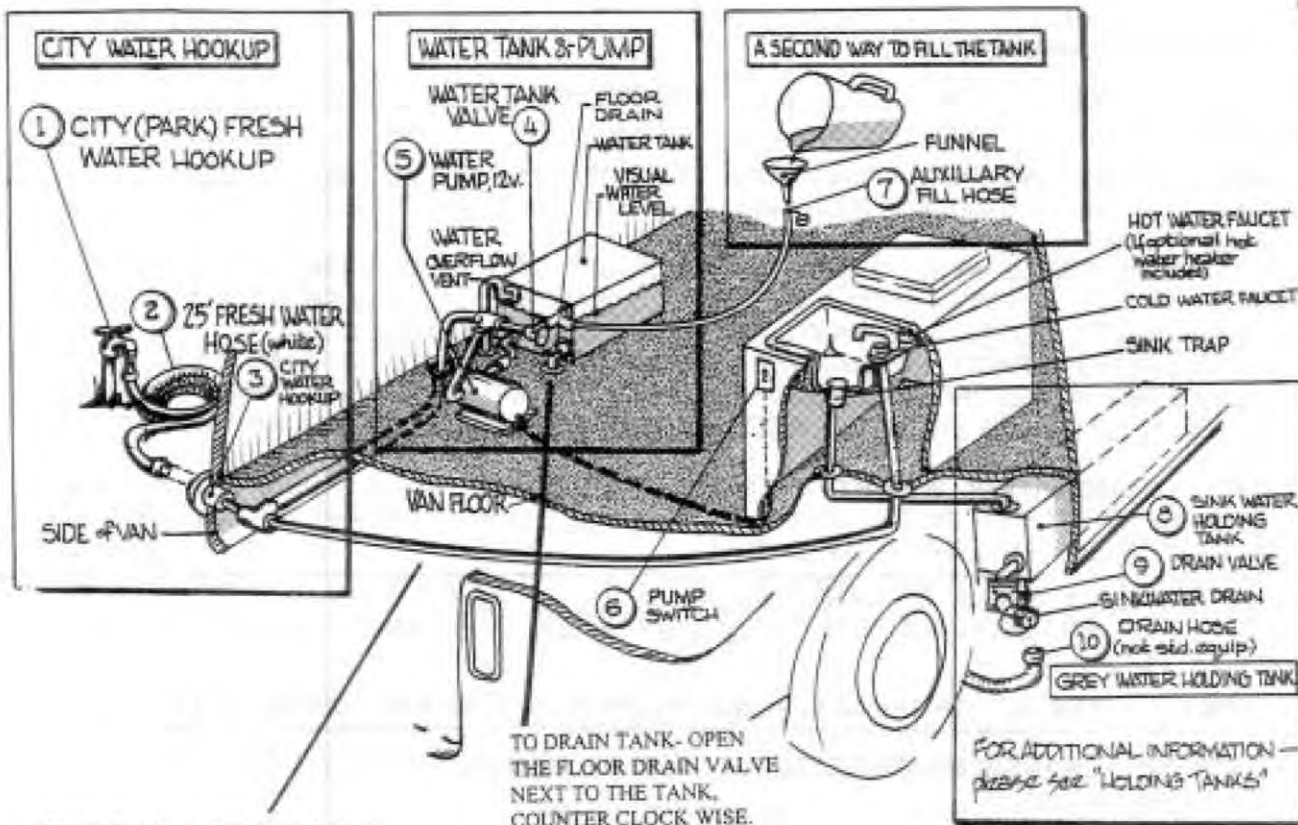
1. Waxing is recommended 2 to 4 times a year. It helps protect the fiberglass surface from normal, common elements.
2. Many over-the-counter auto waxes are available for this application. Check the product for use and application.
3. **WARNING - DO NOT WAX IN DIRECT SUNLIGHT!**

### WHAT CAN BE DONE IF COLOR FADING OR YELLOWING OCCURS?

1. Darker colors are more prone to fading because they absorb more of the sun's ultra-violet rays and retain heat, whites and off whites may discolor or yellow with direct exposure to sunlight.
2. If your gelcoat finish has started to fade or discolor, and waxing does not restore the original finish, compounding with a fine grit machine compound applied with a low speed buffer (200 to 2800 RPM) may be needed, never allow the buffer pad to pick up dirt particles. They can cause deep scratches in the finish that may be very difficult to remove.
3. After compounding, wash the surface with clean water and dry. Apply a coat of wax.

### CAN STAINS BE REMOVED?

1. Most stains can be removed by using a cleaner that is made specifically for gelcoated surfaces. Check a grocery or auto parts store for an applicable product.
2. If remover cannot completely remove the stain, you may wish to hand rub the small area with a fine automobile compound.
3. When removed, rinse with clean water, dry and apply a good coat of wax.



Water line from pump to faucet is now located inside of van for better freeze protection.

**WHEN YOU HAVE A CITY WATER HOOKUP**

1. The Water Pump switch should be "off" whenever you are connected to city water.
2. Connect the fresh water hose (2) - to the city water connection (1) - and the city water hookup in the side of the van (3). You will now have water to your sink faucet and options such as the hot water heater, shower and marine toilet.

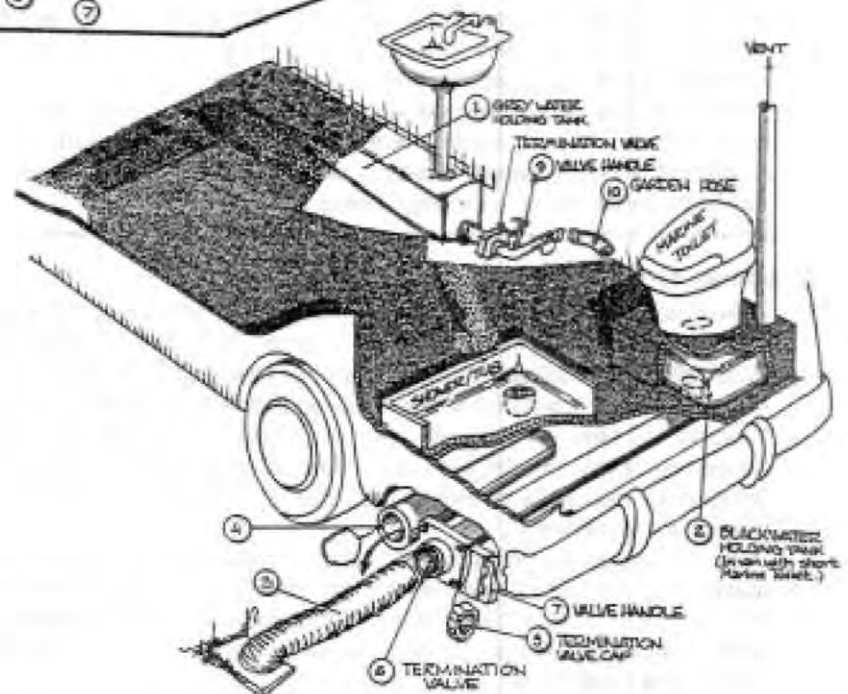
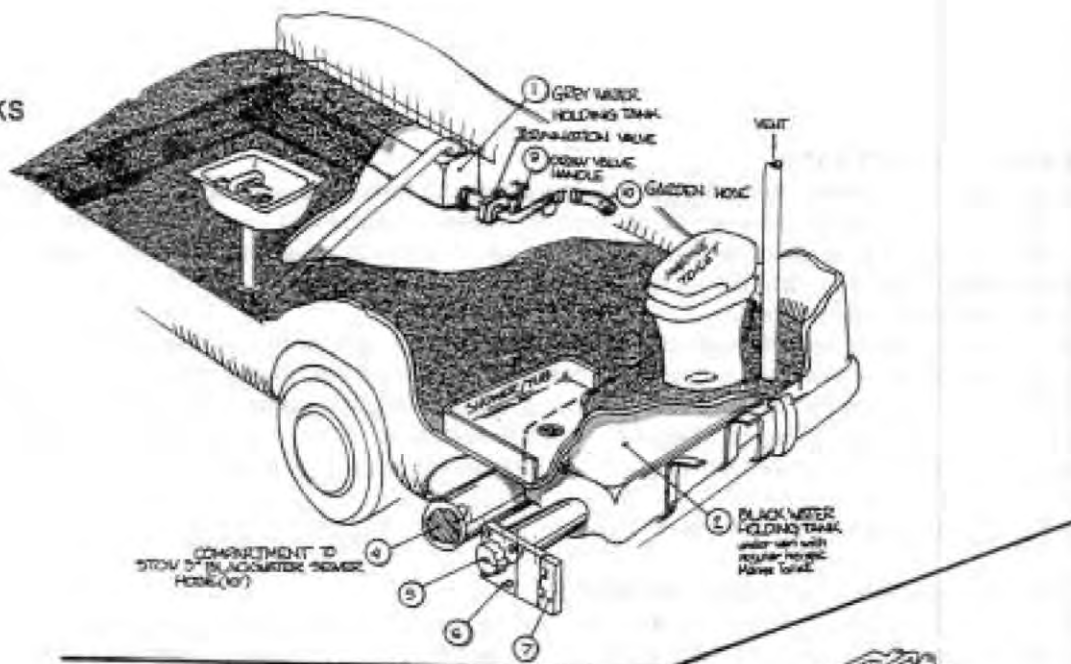
**TO FILL YOUR FRESH WATER TANK**

1. Turn the water tank valve on (4). When full, turn the valve "off".
2. Note - the only time this valve should be "on" is when you need to fill the tank. Leave "off" at all other times.
3. In the event you cannot fill you water tank with the freshwater hose, you can fill the tank with the auxiliary fill hose (7). You can also "flush" your tank this way.
4. When you do not have a city water hookup, your water pump (5) - will pump water from your tank to the sink faucet.
5. Simply flip the switch "on" (6) - and leave it on. Whenever you turn the water faucet on, you will have fresh water.

**TO SANITIZE WATER SYSTEM**

1. To assure complete sanitation of your fresh water system, it is recommended that the following procedures be followed on a new system, or one that has not been used for a period of time.
2. There are several commercial solutions approved for use. You can also prepare a solution yourself...
  - A. Prepare a chlorine solution using one gallon of water and 1/3-cup of household bleach (5% sodium hypochlorite solution). With water tank empty, pour one gallon of solution into tank for each 10 gallons of tank capacity. Complete filling of tank with fresh water. Open faucets to release air. Pressurize system with pump until water flows, then turn off pump and faucets. Allow to stand for three hours. Drain and flush with potable fresh water.
  - B. To remove excessive chlorine taste or odor which may remain, prepare a solution of one quart of vinegar to five gallons of water and allow solution to agitate in water tank by vehicle motion (several days if possible). Drain tank and again flush with potable fresh water.

## HOLDING TANKS

**GREY WATER HOLDING TANK, FOR SINK AND SHOWER WATER**

1. This tank (1) installs under the right side of the van.
2. The tank can be drained by removing the end cap, and pulling the valve open (9). This water can be drained into a park ground tank by connecting a garden hose (10) to the termination valve end.
3. If your Sportmobile includes a black water holding tank, the termination valve will be on the drivers side. Depending on your floor plan - the grey water may also drain into this tank.

**BLACK WATER HOLDING TANK, FOR MARINE TOILET**

1. This tank can install under the vans floor, or inside the van depending on the floor plan.
2. A 10' long (3") sewer hose (3) - is supplied for the black water holding tank. A water line connects to the Marine Toilet for flushing.

**BLACK WATER HOLDING TANKS, DRAINAGE**

1. Your waste drainage system was designed to provide adequate and safe storage and/or discharge of waste materials. All materials used in fabrication of the system and appliances and fixtures connected thereto are tested and approved by a nationally recognized testing laboratory. Installation of these materials is accomplished by approved RVIA codes.
2. The drainage system basically uses properly sized ABS plastic piping and fittings connected to sinks, toilet and holding tanks and provides for their drainage to an outside termination. All fixtures incorporate the use of "P" traps to provide a water seal against entry of gases from outside connections. The Sportmobile should be reasonably level for best operation of the system.



### DRAINING THE FRESH WATER TANK

1. A drain is located next to the water tank that permits the emptying through a drain tube that goes through the van floor. Turn the drain knob counter clock wise to open. Depending on the floor plan and other appliances, such as the marine toilet and hot water heater, additional drains may be included. This will permit the complete system to be drained for sanitizing, storage or winterization.
2. To drain the complete fresh water system.
  - A. Level van. Drain the water tank through the drain located next to tank and any other drains included. To drain the lines, open the valve behind the city water connection. This is the "lowest" point of your water lines.
  - B. Remove the outlet hose on the pump. Turn the pump on, allowing the pump to pump out any remaining water...about a cupful. A towel or rag can be used to catch this water. Should you wish to blow the lines out with air, apply the air nozzle to the system where the outlet hose has been removed. Be sure all valves are open.
  - C. Having removed the water from the system, reattach the pump hose. The system is now winterized.

### USING WATER SYSTEM DURING FREEZING WEATHER

1. Please keep in mind that most Sportsmobiles are not designed for extended use during sub-freezing weather. However, with the addition of heat tapes on hoses, additional insulation, and with observance of certain procedures and physical limitations of equipment and design, you may be able to operate satisfactorily if temperatures do not drop too low.
2. Water freezes at any temperature below 32 F, but the real problems of operation come at bitterly cold temperatures. Your interior water lines, water fixtures, water storage tank and pump assembly are normally protected from moderate freezing temperatures as long as the furnace remains in operation. Drain lines exposed under the vehicle may freeze quickly.

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### DUMPING THE WASTE HOLDING TANK

1. Waste holding tanks are usually dumped while connected to a sewer rise at a travel park. You may need to use other dump facilities from time to time. It is best to carry along various RV campground guides such as Woodall, Rand-McNally or Good Sam for their listing of dumping facilities.
  - A. Most of the unwanted solids build-up in the black water holding tank is due to using too little water and not flushing the tank out properly after each use. If you wish to dump a partially full tank, it is better to fill the remaining space in tank with water first to provide the volume necessary for complete flushing. Never use ammonia's, alcohol's or strong bleaches to clean the holding tank as they can cause damage to the plastic tank and drain lines.
3. Vehicle movement helps liquefy solids for easier dumping of the tank. For this reason, when possible, it is always better to dump soon after road travel rather than before road travel. To empty the tank, connect drain hose to the drain line termination fitting and the sewage receptor. Pull the "black water" slide valve in one slow continuous motion. After the tank empties, follow up with fresh water rinse. Close valve in one continuous motion and secure valve lever.

### CLEANING THE DRAINING SYSTEM/HOLDING TANKS

1. Completely drain holding tanks of waste material.
2. Flush sinks, shower and lavatory with solution of hot water, water softener and soap. rinse well and allow solution to drain into holding tanks. Flush with clean hot water.
3. Agitate water in holding tanks by rocking the van, or drive vehicle a few miles. Drain holding tanks, flush with clean water and drain again.

## PROPANE SYSTEM

SPORTSMOBILE HAS REWRITTEN THE MFG.'S INSTRUCTIONS IN AN EFFORT TO MAKE THEM EASIER TO FOLLOW.

1. **WARNING** -- These sheets are to be considered only as supplements to the manufacturers literature not replacements. It is important that you read and understand all of the manufactures literature before operating any of these items. Sometimes a supplier will change information and these sheets may not be current. Should there be any conflict with Sportsmobile sheets -- follow the manufacturers instructions.

### GENERAL

1. LP-gas is a highly flammable fuel contained under pressure and may cause fires and/or explosions if improperly used.
2. LP-gas (liquid petroleum gas) is a true gas compressed into liquid form for easy transportation and storage. It is also known as propane or bottled gas. It is safe, economical and, because of its portability, it provides modern living convenience no matter where you travel.
3. LP-gas is flammable, always contained under pressure and the liquid can freeze skin. Therefore, in the interest of safety, it is important to understand the basic facts about LP-gas and LP-gas containers.

### SOME BASIC PRACTICES TO ENSURE SAFETY AND TROUBLE-FREE USE

1. Never allow your LP-gas tank or cylinder to be filled above the maximum safe level as indicated by the fixed liquid level gauge (ouage). Do not use the visible gauge for filling.
2. Do not use a wrench or pliers to close the POL service valve or fixed liquid level gauge on your tank. These valves are designed to be closed leak-tight by hand or screwdriver as appropriate. If wrenches are necessary to stop a leak, the valve needs repairing or replacement.
3. When tightening the POL Nut (left-hand thread) on the service valve, draw it up snug with a proper wrench -- don't jam it. This is a machined male brass fitting which seats securely against a female seat in the POL valve -- no pipe dope is necessary. Check for leaks after connecting. Apply soapy water to connection, turn off all burners, pilots and open service valve. Leaks will be detected by the appearance of bubbles. If bubbles appear, tighten POL connector and repeat leak test.
4. When using tank, slowly open POL service valve all the way. Listen to the regulator. A hiss means a leak.
5. Check all tank and line connections periodically to be sure they are tight. When testing for leaks use soapy water -- not matches.
6. Make certain your cylinder is properly fastened in place.
7. Since LP-gas is non-corrosive, you need not worry about the inside of your tank. However, the outside should be kept from rusting by a periodic coat of paint in a light reflective color.
8. Practice safety at all times. If you have questions about the operation of your appliance or LP-gas systems, contact your local LP-gas dealer.
9. Do not store LP-gas tanks or cylinders indoors or in enclosed areas. Do not expose LP-gas container to heat. Always store with service valve closed and plugged.
10. Do not attempt to repair LP-gas containers, valves or regulators.
11. Valve information supplied by appropriate manufacturer.

### PROPANE TANK

1. Sportsmobile mounts the horizontal propane tank under the van in an approved fashion, with a hinged access to the service (main shut-off) valve.
2. POL-Vapor withdrawal service valve allows "expansion" space for the liquid, which expands as outside temperature rises.
3. RELIEF VALVE -- Will automatically open at predetermined high pressure. Usually due to over-fill and outside high temperature.
4. FILL VALVE -- Is easily accessible from side of van, (Tank does not have to be removed for filling.)
5. SHUT-OFF VALVE -- To appliances is located directly on tank adjacent to fill valve.
6. GAUGE -- A visible gauge is mounted in the side of the tank. The dial reads much as a gasoline gauge.

### SAFETY IN USING LP-GAS

1. You should check for leaks at the connections on the LP-gas system soon after purchase and initial filling of LP tanks, and continued periodic checks of the system are recommended because of vibrations encountered during travel. Your Sportsmobile was manufactured to provide you with full access to all gas line connections. Leaks can be found easily with a soapy water solution applied to the outside of the gas piping connections. Usually tightening of connections will close leaks. If not, ask your authorized service dealer to make the necessary repairs.
2. Be sure to shut off the main LP-gas supply valve when the vehicle is moving, to prevent any accidental ignition of gasoline fumes while refueling.

### WARNINGS

1. LP-gas is heavier than air. Leaking gas tends to flow to low places, much like water. It will sometimes pocket in a low area. LP-gas can usually be detected by an identifiable odor similar to onions or garlic. Never light a match or allow any open flame in the presence of leaking gas.
2. This system is for liquefied petroleum gas only. Do not connect natural gas to this system.
3. All appliance valves must be closed before turning the main tank valve on.
4. Check periodically for leaks. Please see above. Never use a match or flame to check for leaks.
5. Practice safety at all times. If you have questions about the operation of your appliance or LP-gas system, contact your local LP-gas dealer.



## LP-GAS REGULATORS

1. LP-gas regulators reduce the pressure of LP-gas vapor from tank pressure to 6 1/4 oz. or 11" W.C. For use at the appliances.
2. The regulator is the heart of the LP-gas system and although it seldom requires service, care should be taken to protect it from the elements which could cause it to malfunction.
3. In addition, your LP-gas system should be kept free of moisture which could cause regulator freeze-up.
4. Installation of a good regulator enclosure will protect your regulator and anhydrous methanol injected into your LP-gas container will help to prevent freeze-ups (1 pint per 100 gallons capacity).

## ADVANTAGES TO TWO-STAGE REGULATORS

1. Reduce Freeze-Up Problems -- A two stage regulator must be used on RV's. A two-stage regulator greatly reduces the possibility of freeze-ups because (1) larger orifice sizes can be used in the regulators and (2) heat can be transferred through the walls of two regulators instead of just one.
2. Improved regulation -- The second stage regulator receives a relatively uniform pressure from the first stage regulator. This helps the second stage regulator to maintain appliance pressure at a nearly constant 11" W.C. because it does not have to adjust to varying inlet pressures.

## PURGING AIR FROM LP-GAS CONTAINERS

1. Air in LP-gas containers must be removed during the initial filling with LP-gas. If the container is not properly purged, air in the container dilutes the LP-gas vapor. Failure to purge may cause excessive tank pressure, slow filling and poor operation of Automatic Stop Fill valve. Appliances then require constant adjustment and pilot lights won't stay lit. This condition would exist until all air is depleted, leaving pure LP-gas vapor.
2. Have your LP-gas containers purged, using LP-gas vapor to ensure satisfactory appliance performance. It only takes a few minutes and your LP-gas dealer is equipped to perform this service.

## FILLING YOUR LP-GAS CONTAINER

1. Caution! Overfilling is hazardous! Do not overfill your LP-gas container. Stop filling when liquid appears at the fixed liquid level gauge.
2. Your LP-gas container is equipped with a fixed liquid level gauge which contacts the liquid level at 80% of container capacity allowing 20% for expansion.
3. LP-gas containers must not be filled over 80% of total capacity. Propane expands approximately 1.5% for each 10°F temperature rise. Only qualified personnel should fill your container.
4. Pumps do not stop filling "automatically." Pumps "by-pass" when tanks are dangerously filled to total capacity.
5. If overfilled, excessive pressure could develop within the container causing the relief valve to open, relieving pressure to a safe level at which time it will automatically close. However, LP-gas released through the safety relief valve is flammable; thus it could cause a fire. The fixed liquid level gauge is used only to determine safe fill levels and does not indicate lower levels. Your LP-gas container has a visible gauge that monitors the amount of gas in the container at all times, reading from full to empty.

## COMMON TERMS OF LP-GAS TANKS

1. POL-Vapor withdrawal service valve.
2. 20% Fixed Liquid Level Gauge. (Sometimes inaccurately called a 10% valve).
3. Vapor withdrawal tube. (Used on tanks where POL Valve is not located on top of tank.)
4. Bottom ring, stand legs, or mounting brackets.
5. Safety relief valve. Do not tamper.
6. Spud & nut with excess flow required on all RV's.
7. Two-stage pressure regulator.
8. Automatic Stop Fill Valve with 1-3/4" ACME.
9. Visible sight gauge. Available with remote sender.

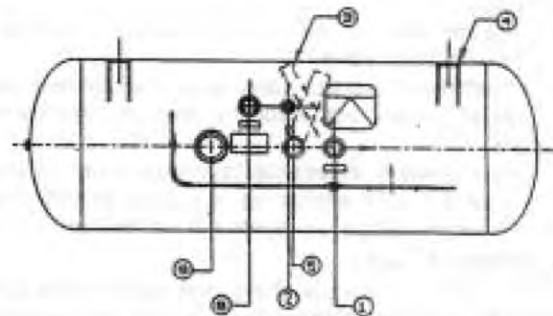


FIG. NO. 1  
ASME Horizontal Motor home tank

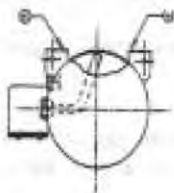


FIG. NO. 2  
Side View FIG. NO. 1



FIG. NO. 3  
Regulator cover required on all exposed regulators.



FIG. NO. 7  
Two-stage regulator required on all RV's.

**IN ADDITION TO THE PRECEDING PROPANE INFO THIS SHEET IS ALSO REQUIRED BY RVIA.**

**Warning:** LP-gas containers shall not be placed or stored inside the vehicle. LP-gas containers are equipped with safety devices that relieve excessive pressure by discharging gas to the atmosphere.

**Warning: IT IS NOT SAFE TO USE COOKING APPLIANCES FOR COMFORT HEATING**

**Warning:** Cooking appliances need fresh air for safe operation. Before operation:

1. Open window
2. Open overhead vent or turn on exhaust fan, if so equipped. The warning label has been located in the cooking area to remind the user to provide an adequate supply of fresh air for combustion. Unlike home, the amount of oxygen supply is limited due to the size of the recreational vehicle, and proper ventilation when using the cooking appliance (s) 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 period of time.

**Warning Label has been located near the LP-gas container.**

**DO NOT FILL CONTAINER TO MORE THAN 80 PERCENT OF CAPACITY.**

Overfilling the LP-gas container can result in uncontrolled gas flow, which can cause fire or explosion. A properly filled container will contain approximately 80 percent of its volume as liquid LP-gas.

**Warning:** Portable fuel-burning equipment, including wood and charcoal grills and stoves, shall not be used inside the recreational vehicle. The use of this equipment inside the recreational vehicle may cause fires or asphyxiation.

**Warning:** Do not bring or store LP-gas containers, gasoline, or other flammable liquids inside the vehicle because a fire or explosion may result.

**WARNING: The following information label has been located inside a cabinet door.**

**IF YOU SMELL GAS:**

- A. Extinguish any open flames, pilot lights, and all smoking materials.
- B. Do not touch electrical switches.
- C. Shut off the gas supply at the tank valve or gas supply connection.
- D. Open doors and other ventilating openings.
- E. Leave the area until odor clears.
- F. Have the gas system checked and leakage source corrected before using again.

**LP-GAS CONSUMPTION**

1. Most gas appliances are operated intermittently. Unless there is heavy use of hot water, water heater consumption is not too great. Operating under wintry conditions, requiring heavy use of the furnace, is what really consumes the gas rapidly. During freezing weather and high wind conditions, furnace consumption can be extremely heavy.
2. LP-gas consumption depends upon individual use of appliances and the length of time operated. One gallon of propane equals 4.2 pounds. Each pound of LP-gas produces about 21, 600 BTU. A 40 lb. tank has a 32 lb. net fill. 32 pounds of LP-gas = about 691,200 BTU. Divide the appliance consumption BTU's into 691,200 BTU (for a 32 lb. net fill tank) to get the approximate running time.

**Example:** A stove top burner uses 5000 btu per hour. 5000 BTU divided into 691,200 BTU = 138 hours of continues use.

| APPLIANCE:                 | "HEAVY CONSUMPTION" |                            |
|----------------------------|---------------------|----------------------------|
| Water Heater.....          | 8500 BTU =          | 81 continuous hours of use |
| Refrigerator.....          | 1320 BTU =          | 523 " "                    |
| Furnace.....               | 12,000 BTU =        | 58 " "                     |
| Each Stove Top Burner..... | 5000 BTU =          | 138 " "                    |

**NOTE: All of the above items will cycle on and off as needed, except the stove top burners.**

## FURNACE

The information below has been copied from Suburban's User's Manual. It is important that you read and understand all of the supplied manufacturers literature before operating the furnace. Sometimes a supplier will change information and these sheets may not be current. Should there be any conflict with Sportmobile sheets – follow the manufacturers instructions.

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**WARNING!** Do not operate furnace while vehicle is in motion or being towed.

**NOTE:** During initial firing of this furnace a burn-off of excess paint and oils remaining from manufacturing process may cause "smoking" for 5 - 10 minutes.

### FOR YOUR SAFETY READ BEFORE OPERATING

**WARNING: If you do not follow these instructions exactly, a fire or explosion may result causing property damage, personal injury or loss of life.**

A. This appliance does not have a pilot. It is equipped with an ignition device which automatically lights the burner. Do not light the burner by hand.

B. **BEFORE OPERATING** smell all around the appliance area for gas. Be sure to smell next to the floor because some gas is heavier than air and will settle on the floor.

#### WHAT TO DO IF YOU SMELL GAS

- Extinguish any open flame.
- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Do not touch any electric switch or use any phone or radio in the vehicle.
- Do not start the vehicle's engine or electric generator.

- Contact the nearest gas supplier or qualified service technician for repairs.
- If you cannot reach a gas supplier or qualified service technician, contact the nearest fire department.
- Do not turn on the gas supply until the gas leak(s) has been repaired.

C. Use only your hand to push in or turn the gas control knob. Never use tools. If the knob will not push in or turn by hand, don't try to repair it, call a qualified service technician. Force or attempted repair may result in a fire or explosion.

D. Do not use this appliance if any part has been under water. Immediately call a qualified service technician to inspect the appliance and to replace any part of the control system and any gas control which has been under water.

#### OPERATING INSTRUCTIONS

1. **STOP!** Read the safety information above on this label.

2. Set the thermostat to lowest setting.

3. Turn off all electric power to the appliance.

4. The appliance is equipped with an ignition device which automatically lights the burner. Do not try to light the burner by hand.

5. Turn shut-off valve to "OFF". This furnace is equipped with a valve shut-off switch. With switch in "OFF" position, gas will not flow to burner nor will the furnace operate.

6. Wait five (5) minutes to clear out any gas. Then smell for gas including near the floor. If you then smell gas, **STOP!** Follow "B" in the safety information above on this label. If you don't smell gas, go to next step.

7. Turn on all electric power to the appliance. These units are for use with LP gas only. LP gas is heavier than air. Therefore, to better clear out any gas, the heater should be operated for five (5) minutes with the blower on and the gas off.

8. Turn shut-off valve to "ON".

9. Set thermostat to desired setting.

10. If the appliance will not operate, follow the instructions "To Turn Off Gas to Appliance" and call your service technician or gas supplier.

#### TO TURN OFF GAS TO APPLIANCE

1. Set the thermostat to lowest setting, then move "ON/OFF" lever located on bottom of thermostat to "OFF" position.

2. Turn off all electric power to the appliance if service is to be performed.

3. Turn shut-off valve to "OFF". Do not force.

**WARNING:** If the information in this manual is not followed exactly, a fire or explosion may result causing property damage, personal injury or loss of life.

- Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

#### - WHAT TO DO IF YOU SMELL GAS

- Extinguish any open flame.
- Evacuate all persons from the vehicle.
- Shut off the gas supply at the gas container or source.
- Do not touch any electrical switch, or use any phone or radio in the vehicle.
- Do not start the vehicle's engine or electric generator.

- Contact the nearest gas supplier or qualified service technician for repairs.
- If you cannot reach a gas supplier or qualified service technician, contact the nearest fire department.

- Do not turn on the gas supply until the gas leak(s) has been repaired.

-Installation and service must be performed by a qualified installer, service agency or the gas supplier.

**WARNING!** Be sure the furnace and all ignition systems are "OFF" during any type of refueling and while vehicle is in motion or being towed.

#### WARNING! DIRECT VENT FURNACE.

Due to high temperatures, the unit should be located out of traffic and away from furniture and draperies.

Children and adults should be alerted to the hazards of high surface temperatures and should stay away to avoid burns or clothing ignition.

Young children should be carefully supervised when they are in the same room as the unit.

Clothing or other flammable material should not be placed on or near the unit.

Any safety screen or guard removed for servicing the unit must be replaced prior to operating the unit.

The area around the unit must be kept clear from combustible materials, gasoline and other flammable vapors and liquids.

Installation and repairs should be done by a qualified service person. The unit should be inspected before use and at least annually by a qualified service person. More frequent cleaning may be required due to excessive lint from carpeting, bedding material, etc. It is imperative that control compartments, burners, and circulating air passageways of the unit be kept clean.

**WARNING!** Improper installation, adjustment, alteration, service or maintenance can cause property damage, personal injury or loss of life. Refer to the installation instructions and/or owners manual provided with this appliance.



**Note:** 1. If your furnace is new, it will require several hours of running to remove an "oily smell". This odor is from a film of oil on some of the furnace parts.

2. Operation in high altitudes may require a special propane blend; see propane fill station personnel for advise.

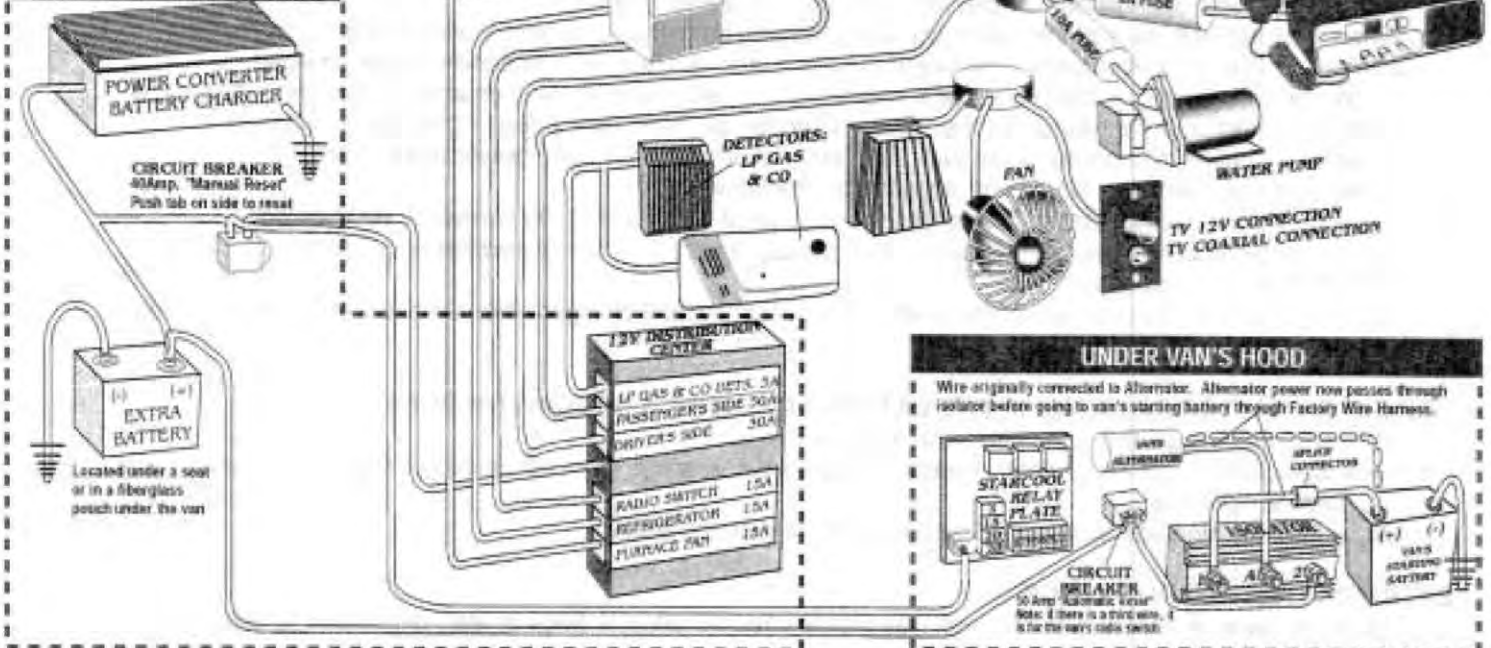
3. For proper furnace operation, extra battery voltage must be above 10 volts. If red light on battery analyzer is on, then battery voltage is too low. Recharge battery by idling engine or with converter/charger if 110V power is available.



## ALSO SEE 12V SCHEMATIC

Some items shown are options that may not be included with your Sportsmobile.

**12V COMPONENTS**  
located under a seat.  
110W power converter also shown.



## ELECTRICAL SYSTEM, 12V

1. The 12 system supplies 12V power to all 12V items when driving or parked.
2. For typical 12V amps usage, please see the "Typical Electrical Requirements" sheet.
3. The only items that continuously draw power from the Extra Battery is the Propane/Smoke Detector, and C.O. Detector. They draw a total of 9 amps per 24 hours.
4. See your van operators manual for the van's 12V system.

## 12V FUSES &amp; CIRCUIT BREAKER LOCATIONS

1. See "12V Distribution Center" drawing above and separate "12V Schematic" sheet. Other 12V fuse locations:

Ceiling Lights - At front upper opening of top, drivers side.

CB - In Overhead Cab Module.

Water Pump - Next to pump.

Starcool Air Conditioner - Next to 12V Distribution Center, also see Starcool information sheets.

2. If new fuse blows when installed, have wiring checked for a short, or check appliance ground. If new fuse is installed and appliance does not operate, check that the ground wire is properly installed.
3. A Manual/Reset circuit Breaker, 40 amp, is located by the 12V fuse block. To reset - depress small plunger on side of breaker. If it continues to "trip", have a technician check for a short circuit.

## ISOLATOR

1. The isolator prevents your van's starting battery from being discharged when you are parked. The Sportsmobile items wired into the van's starting battery, are the cab ceiling dome light and radio amplifier when radio switch is set to battery.

## POWER CONVERTER/BATTERY CHARGER

1. The Power Converter/Battery Charger includes some unique features. It will safely charge your Extra Battery in several hours, while others will trickle charge over a couple of days. It also produces less heat when a heavy 12V load is present.
2. The Converter/Charger provides 12V power to the Extra Battery and 12V lights, fan, water pump, etc. when 110V power is present.
3. The converter, when supplying large amounts of power will become warm. This is a normal occurrence. It is important that the area around the converter be left open, for adequate ventilation.

## EXTRA BATTERY-HOW LONG TO CHARGE?

That's a hard question to answer. There are many variables.

### DRIVING - CHARGING WITH THE "VAN'S ALTERNATOR"

1. The van's alternator has a maximum output of 130 to 136 amps per hour. The van's Ignition and fuel system will use roughly 35 amps per hour. If you have the van's A/C, headlights, radio and windshield wipers on, you will be using about another 55 amps an hour, or a total of approximately 90 amps. Keep in mind the alternator has to keep both the van's starting battery and the Extra Battery charged.
2. The Starcool A/C blower on low will use 20 amps per hour (24 amps on high). If you have other items on such as the Refrigerator, Lights, Detectors, etc., you could be using an additional 10 amps or so.
3. The above van and Sportsmobile amp use total would be 120 amps per hour ( $90 + 30 = 120$ ). This would leave only 0 to 10 amps an hour to charge your Extra Battery. If your 115 amp Extra Battery was discharged down to 25 amps, (this is about as low as the battery can be discharged) this would leave about 90 amps to fully charge the battery ( $115 - 25 = 90$ ). If your alternator has 10 amps of power left, it would take about 9 hours of driving to fully charge your battery ( $90 \div 10 = 9$ ).
4. The above is a "rough" approximate charging time. As we stated in the beginning, there are a lot of variables to consider. Actually, it could take only 6 or 7 hours instead of the 9 hours.
5. On the other hand, if you are driving with only the van's ignition and fuel system drawing amps from the van's starting battery, you could charge the Battery in around two hours or so.
6. If you drive your Sportsmobile every day for only 30 minutes or so, and you leave your Refrigerator on, we suggest you connect the 110V power when you are home, every other day or so. This will assure that the Extra Battery will be kept fully charged. Prior to going on a trip, we suggest you start with a fully charged Battery.

### WHILE PARKED - AND CONNECTED TO "110V POWER"

1. Again, there are many variables.
2. The Power Converter/Battery Charger has a maximum of 40 amps per hour, 55 amps if you have the optional Starcool Air Conditioner.
3. All of the Converter/Charger output power could be used if you have the (1) Starcool A/C on high, and other items on, such as a number of Lights, TV, Fan, etc. It could take 8 hours or so to fully charge the Extra Battery. If you did not have the A/C on, it could be around 3 or 4 hours.
- (1) The Starcool compressor will be running on 110V. The Starcool condenser and blower fans will be on 12V.

### AT A CAMPSITE WITHOUT 110V HOOKUPS, YOUR EXTRA BATTERY IS GETTING LOW AND YOU WANT TO STAY ANOTHER NIGHT?

1. Idle your van's engine 30 minutes or so – without the A/C or Lights on, or take a 30 minute drive. This should charge the Extra Battery enough to be able to operate your Refrigerator over night.



## PHOTOGRAPHS SHOWING THE 12V &amp; 110V ELECTRICAL DISTRIBUTION CENTERS



**12V ELECTRICAL CENTER - Under Dinette**  
**GFI PROTECTOR** - Test - push, Reset - push  
**MASTER CIRCUIT BREAKER (12V)** - To reset push small tab on side of breaker. This small breaker may be located close to or inside the 12V electrical center.  
**POWER CONVERTER/BATT. CHARGER**

**110V DISTRIBUTION CENTER - in seat front**  
**110V CIRCUIT BREAKER PANEL**  
**VENTILATION VENT**  
**PROPANE DETECTOR**



12V DISTRIBUTION CENTER  
 Shown open for fuse access

**12V CENTER - Under Gaucho**  
**MASTER CIRCUIT BREAKER (12V)** -To reset-push tab in side of breaker. This small breaker may be located close to or inside the 12V distribution center.  
**GFI PROTECTOR**  
**110V DISTRIBUTION CENTER**  
 Located in seat front (see above.)

**Note-**If there is no 12V power for lights or other 12V items, depress small tab in the side of the Main Circuit Breaker.

**EXTRA BATTERY**

For access to the battery remove the 4 screws that hold the top half of the battery case to the bottom half. You can pull the top up for access. Sometimes the battery is located in a minimum clearance space. It may be necessary to pull the vent hose from the side of the case before you can pull

the top case half up. You can do this by removing the vent plate outside the van, 2 screws. You will then be able to pull the vent hose out, which will uncouple it from the case vent flange.

**Warning:** Be certain box is sealed after top is replaced

**EXTRA BATTERY**

Located under van floor. For access, unsnap carpet, remove 4 screws that hold lid on top of fiberglass pouch

**WARNING:** Be certain lid is completely sealed after lid is replaced.

Battery is shown under a Dinette seat, however, the Battery is often located elsewhere.

## PHOTOGRAPHS SHOWING THE ISOLATOR &amp; CIRCUIT BREAKER UNDER VAN'S HOOD

**FORD VANS**

**CIRCUIT BREAKER (12V)**-Automatic reset, 50 Amp. If there is a third wire it is for the alarm. This breaker protects wiring between isolator and extra battery

**ISOLATOR**-Prevents 12V drain from the vans starting battery.

**DODGE/CHEVY/GMC**

**CIRCUIT BREAKER (12V)**-Automatic reset, 50 Amp. If there is a third wire it is for the alarm. This breaker protects wiring between isolator and extra battery

**ISOLATOR**-Located under van's starting battery. Isolator prevents 12V drain from the vans starting battery.

## RADIO POWER SELECTOR SWITCH

## GENERAL

The purpose of the selector switch is to allow you to have the radio operating while parked and the Ignition "off". By being able to switch back to the original power source, you will not have to turn the radio "off" each time you turn your ignition "off". Be sure to turn radio switch back to "Main" Battery to prevent excessive discharge of your van starting battery.

## OPERATION

The selector switch allows the radio to receive power from either the van starting battery or the Extra Battery.

## SGW - RADIO DOES NOT OPERATE

1. If radio does not operate, check fuses at the factory fuse block and 12V Distribution Center. Check for 12V power to fuse.
2. If fuse is blown, replace only with same size.
3. If new fuse blows, have system checked by a qualified technician.



**GENERAL** - If you should experience a problem with your Extra Battery or 12 Volt System, the following will help you trace it down. At some point you may not feel comfortable in taking the next step in locating the problem. We suggest you then have an RV service center take over or one of the Sportmobile plants.

**A. PROBLEM: LIGHTS ARE DIM - "WHEN" CONNECTED TO A 110 HOOK UP**

- Verify 110 volt power is present.
- Check that circuit breakers are "on".
- Check reset button on GFI outlet. Push to test. Push to reset.

If above okay-proceed to "C".

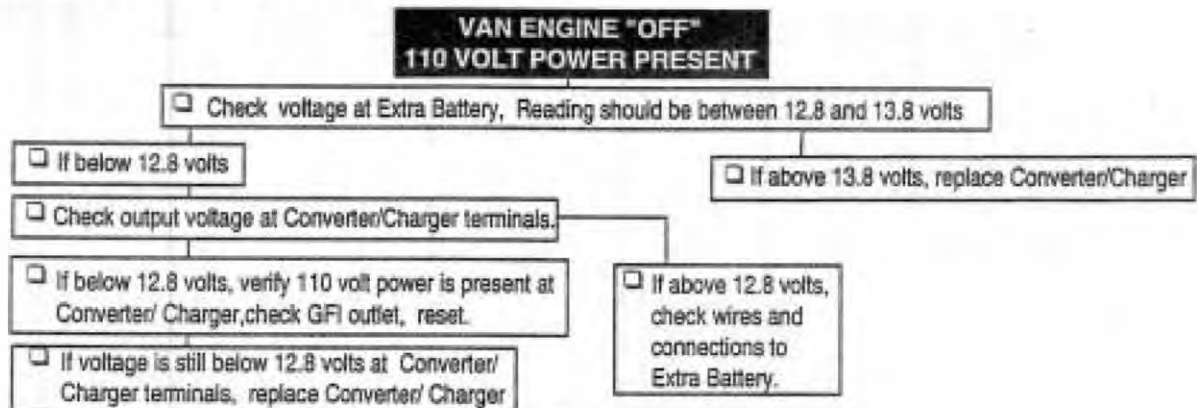
**B. PROBLEM: EXTRA BATTERY DOES NOT SUPPLY POWER LONG ENOUGH - WHEN "NOT" CONNECTED TO A 110V HOOK UP.**

- Check water level in Battery. See the Extra Battery sheet for access and other information.

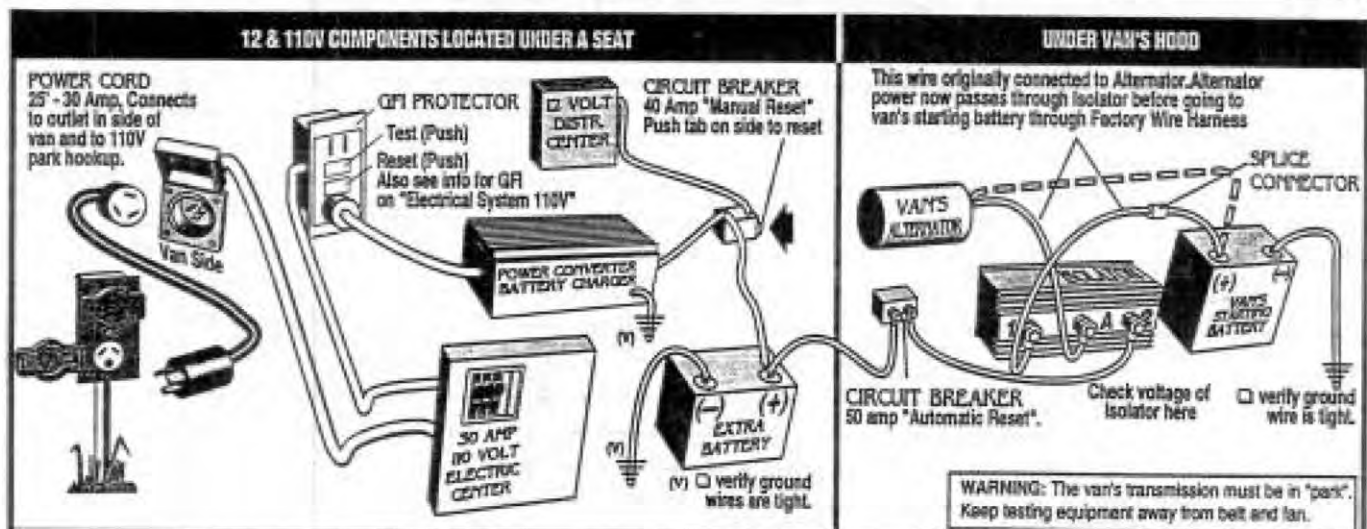
If above okay-proceed to "D".

**C. POWER CONVERTER/BATT. CHARGER OKAY?**

- With Sportmobile connected to 110V hookup and van engine "not running", Battery Analyzer should have yellow or yellow and green light on.
- See illustration 1 below. Also see 12V schematic sheet.



If above okay-proceed to "D" next page.



**D. EXTRA BATTERY OKAY?** One of the following tests will tell.

- **LOAD TEST** – A qualified service or Sportmobile can perform this test to determine if the Battery has a bad cell and needs to be replaced.
- **HYDROMETER** – Simply plunge the Hydrometer below the  $\frac{1}{2}$  oil layer and extra acid. Should you remove oil out of the battery, gently pour it back in and rinse your Hydrometer. Make sure the fluid level is at the top and start the operation again. A Hydrometer will tell you if a cell is bad and the Extra Battery needs to be replaced.
- **BATTERY "ANALYZER"** – 1) With engine "not running" plug analyzer into 12V outlet. 2) If "yellow" or "red and yellow" lights on, Extra Battery is okay. 3) If "red" light is on, Extra Battery needs to be charged. 4) Have battery tested with a Load Tester or Hydrometer if "red" light stays on after charging. 5) Remove analyzer from 12V outlet when not using.

If Battery is okay proceed to E.

**E. CHARGING SYSTEM (ALTERNATOR & REGULATOR) OKAY?**

You can check it with the (Analyzer). Note: Plug Analyzer into cigarette lighter on dash for this test. See instructions on Analyzer.

**F. CIRCUIT BREAKER, ISOLATOR, VANS ALTERNATOR/REGULATOR (12V CHARGING SYSTEM) OKAY?**

A voltmeter is required for this test, (available at auto parts and Radio Shack stores). Follow the instructions included with the voltmeter.

**VAN ENGINE "RUNNING"**

Using the voltmeter – check the voltage at both the Extra Battery and the van's Starting Battery, the reading should be between 12.8 and 15.2 volts.

If Batteries are below 12.8 volts, idle van engine at a higher RPM and re-check voltage. If the voltage is still below 12.8 volts, batteries are not getting a full charge. Proceed with next check.

Check 50 amp Circuit Breaker, if both terminals do not have the same voltage, replace Circuit Breaker.

Check voltage at center terminal "A" of Battery Isolator, if voltage is more than 3 volts higher than terminal "1" of Battery Isolator, replace Isolator.

If both Batteries are above 15.2 volts, have a qualified technician check van's Alternator/Regulator.

If Extra Battery voltage is more than 2 volts higher than van Starting Battery.

Check factory wires and connections  
 Check for corrosion at van's Starting Battery.

Replace Isolator.



**REFRIGERATOR, 12/110V NORCOLD****GENERAL**

1. Unlike gas refrigerators, a 2-way (12/110V) refrigerator does not have to be level to operate efficiently. Parking a vehicle level can often be an inconvenience, and this is a must for 3-way (12/110V & gas) refrigerators. 2-way refrigerators also get cold faster, and no outside venting is required.
2. For complete operation and warranty information, please see Norcold's literature.

**OPERATION**

1. Turn "on-off" switch to "on", set thermostat dial to desired setting.
2. The interior temperature drops as the dial position is changed from "1" to "5". Interior temperatures can be regulated freely within the range of 45° to 32° F in the food compartment. To switch off your refrigerator, turn "on-off" switch to "off". For efficient operation, regulate the temperature according to the types of food stored.
3. When not in use, the refrigerator should be emptied, cleaned and dried, and the door left ajar.
4. To defrost, turn switch to "off". When frost is melted, wipe the compartment plates with a soft, dry cloth. You can also set the dial to "1" before you retire for the night. The frost will be gone the next morning.

**YOUR NORCOLD REFRIGERATOR AUTOMATICALLY SWITCHES**

1. WHEN YOUR VAN ENGINE IS "RUNNING" - your van's alternator will be charging your van's starting battery and your Extra Battery. Your refrigerator will be running on 12V power (if you have the refrigerator turned on).
2. WHEN YOU TURN YOUR VAN ENGINE "OFF" - the isolator switch included with the Extra Battery will cause your refrigerator to draw power from the "Extra Battery" only.
3. IF YOU HAVE AN OUTSIDE "110V HOOKUP" - (at home, campsite, etc.) - and you plug your 110V cord into this service, your refrigerator will operate on 110V power. Your refrigerator will automatically switch back to 12V power from your extra battery when you unplug your 110V cord.
4. OVERCOOLING DRAINS YOUR BATTERY - in order to avoid an excessive drain of your battery, it is advisable to keep the thermostat setting at the #3 setting when ambient temperatures are in the 70° to 90° F range. When frozen food is stored in the freezing compartment, advisable thermostat setting is the #5 setting at the same temperature conditions.

**WARNING**

1. Never employ an outside "quick charger" to your battery unless the refrigerator has been turned "off". If you do not do this, extensive damage to your refrigerator may result.
- 

**ATTIC FAN****OPERATION INSTRUCTIONS**

1. Open dome approx. 3" or more (fan has a built in safety switch that will not allow motor to operate unless dome is open).
2. Turn 3-speed knob to desired performance lever (3-Low, 2-Medium, 1-High, 0-off).
3. Open a window or door for airflow.
4. Source of airflow is determined by the windows opened. For best results open 1 window the greatest distance from your fan.
5. NOTE - never place additional vent cover over fan. Greatly restricted airflow and increased sound levels will occur.
6. NOTE - Never operate the roof vent when using optional Generator.

**WHEN EQUIPPED WITH "REVERSE" SWITCH**

1. Turn fan motor off by;
  - A. Setting 3-speed switch to "0" off.
  - B. Closing Dome.
  - C. Selecting center position on IN/OUT rocker switch.
2. Wait for fan blade to stop.
3. Select "IN" position, brings air from the roof area into your coach (pressurizes inside).
4. Or select "OUT" position, brings air in through any or all openings in coach and exhausts through the roof.
5. Turn fan motor ON.

**WHEN EQUIPPED WITH "THERMOSTAT":**

1. Follow "Operating Instructions" 1 thru 4.
2. Select desired temperature or comfort level on thermostat. Fan motor will now start and stop automatically as interior temperatures change.



**WATER PUMP****GENERAL**

1. Your water system is a "demand" type system. When the pump switch is "on" the pump will pressurize the water lines and remain in a "stand by" mode until a faucet is opened. At that time, the pump will begin pumping water. The pump will stop when the faucet is closed.

**TO OPERATE**

1. Make sure the water tank has plenty of water in it.
2. Turn the switch "on". The pump may operate momentarily.
3. If the pump continues to operate, open a faucet and let excess air escape, then close. If the pump still continues to operate, check the water tank fill valve, located next to the water tank, and make sure its turned "off".
4. If the pump still continues to operate turn it off and have the water system checked.

**WHEN YOU ARE CONNECTED TO CITY WATER**

1. Turn water pump switch "off". The city water will pressurize the water lines.
2. Failure to turn switch "off" will allow the pump to take water from the tank even though you are connected to city water.

**SGW (SOMETHING GONE WRONG)****LOOSE PUMP HEAD**

1. Any or all of the following problems can be caused by loose pump head screws.

**MOTOR DOES NOT OPERATE**

1. Is the battery charge too low? Are the wires disconnected? Is the switch in the "on" position? Is the fuse good? Is the pump frozen? If so, place a lamp bulb near the pump to thaw.

**PUMP RUNS BUT WATER DOES NOT APPEAR**

1. Is there water in the tank? Is air leaking into the inlet hose or fittings? Is the inlet line clogged. To check, remove the outlet hose and try again. If water flows the problem is further on in the system.

**MOTOR RUNS BUT WATER SPATTERS**

1. Indicates air getting into the lines. Check hose and clamps on the input side of the pump. Restart and allow air to clear from the lines.

**PUMP CYCLES (RAPID ON/OFF)**

1. Cycling of the pump is normal if the flow of water is restricted to less than the flow capacity of the pump. For example, a faucet partially opened. Under these conditions the pump will cycle on and off in a rhythmic interval.

**ABNORMAL CYCLING**

1. If the pump cycles on and off when all faucets are closed, something is wrong. Most likely there is a leak somewhere. Check faucets for dripping, especially the toilet valve if you have a Marine Toilet.
2. Correct any leak no matter how small. Also check the city water input.
3. If no leak can be detected, shut off the pump. Remove the output line. Insert a cap or plug in the open end. You can make a plug from a barb fitting with a cap tightly screwed on the threads.
4. If the fitting is threaded, use a cap or plug. Either way-there must be no leak. Turn the pump switch on. The pump should come on, run a few seconds and shut off. If the pump remains off, the problem is not the pump. The problem is in the system.
5. If, however, the pump goes on and off there may be a problem in the pump. There may be an internal pump leak which allows water to escape from the high pressure area back into the low pressure inlet area causing the pump to cycle. This may be caused by a valve held open by a foreign particle or by a crack in the casting.

**PUMP DOES NOT SHUT OFF**

1. The wall switch may be used for temporary control of the pump. A low battery may be the cause. Voltage should be 10.5 volts or more to the pump. If the motor runs but the pump does not switch off, there may be air in the lines or a valve problem.
2. Try valve replacement kit #94-232-00. If the motor draws current but does not run, it may hum. It may be a switch problem. Try switch replacement kit #94-230.

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**DETECTORS**

**DETECTORS** - The 2 detectors listed below pull .4 amps per hour or 9.6 amps in 24 hours. If you are not going to be in your Sportmobile for an extended period of time, you can pull the 3 amp fuse from the 12V Distribution Panel so your Extra Battery will not be totally discharged. Please see the Electrical System -- 12V sheet for fuse location. Warning -- Replace the fuses as soon as you re-enter the Sportmobile.

**DETECTOR, GAS, PROPANE, Model GS 2**

1. Audible detector with red flashing light.
2. Warning: See manufacturers literature for complete information.

**DETECTOR, CARBON MONOXIDE** - Please see Manufactures Literature

1. Audible detector with red flashing light.
2. Alarm will "beep" intermittently and red light will flash if Extra Battery becomes discharged.
3. Warning: See manufacturers literature for complete information.

**WARNING!** Carbon Monoxide cannot be seen or smelled and can kill you. If alarm sounds: Turn off appliances, vehicle or other sources of combustion at once (furnace, water heater, wood burning stove, RV, automobile, etc.) or call the Fire Department. Get fresh air into premises or vehicle. Have the problem corrected before restarting appliances or vehicle.

**CAUTION:**

This detector only indicates the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.

**WARNING:**

When the alarm sounds on this device, it indicates the presence of carbon monoxide (CO) which can be fatal. The source of this CO may be an appliance such as a furnace, a wood burning stove, a vehicle, or other combustible source.

**When the alarm sounds:**

**EVACUATE THE PREMISES IMMEDIATELY. DO A HEAD COUNT TO CHECK THAT ALL PERSONS ARE ACCOUNTED FOR. CALL THE NEAREST FIRE DEPARTMENT AND ASK THEM TO DETERMINE THE SOURCE OF CARBON MONOXIDE. DO NOT RE-ENTER PREMISES UNTIL IT HAS BEEN AIRED OUT AND THE PROBLEM IS CORRECTED!**

**LIFE SAVING FACTS:**

The following symptoms are related to CARBON MONOXIDE POISONING and should be discussed with ALL members of the household:

- Mild Exposure:** Slight headache, nausea, vomiting, fatigue (often described as flu-like symptoms)
- Medium Exposure:** Severe throbbing headache, drowsiness, confusion, fast heart rate.
- Extreme Exposure:** Unconsciousness, convulsions, cardiorespiratory failure, death.

Many cases of reported CARBON MONOXIDE POISONING indicate that while victims are aware they are not well, they become so disoriented they are unable to save themselves by either exiting the building or calling for assistance. Also, young children and household pets may be the first affected.



**WHAT YOU SHOULD KNOW ABOUT CARBON MONOXIDE**

Carbon monoxide is an odorless and tasteless gas. Known as "CO", carbon monoxide is also colorless and non-irritating. If a person is exposed to enough CO, the results can be permanently disabling or even fatal. And since it is virtually impossible to see or smell CO gas, its victims are usually never aware of any hazard to their health. Further, symptoms of CO poisoning can easily be misinterpreted by physicians or even be unrecognized by the victim until it is too late.

Carbon monoxide has little or no direct toxic effect. The damage from this poisonous gas is due, instead, to a reduced amount of vital oxygen provided to the brain, heart and respiratory tissues. CO can be absorbed only through the lungs and can be toxic at relatively low levels because of its effect on the hemoglobin in blood, which carries oxygen throughout the body. Public health authorities report that each year, an estimated 10,000 persons in the United States alone seek medical attention or lose at least one day of normal activity because of CO inhalation<sup>1</sup>. And because CO can reach its victims long before an actual fire does, 60-70% of all deaths in fires are related directly to CO poisoning<sup>1</sup>.

**WHERE CO COMES FROM**

CO is produced by the incomplete combustion of fuel. All devices that burn fuel (including cooking stoves, lamps, space heaters, furnaces, hot water heaters and engines) have an air inlet to supply oxygen for combustion. If the air inlet is improperly adjusted or if the air flow is restricted by debris or dirt, the amount of CO is greatly increased. In fact, some rather common household items are generators of CO. For example, charcoal grills, wood stoves, fireplaces, gas and kerosene space heaters, camp lanterns and gasoline-powered lawn mowers produce generous amounts of CO. Thus, proper ventilation and prevention of CO buildup in confined areas where fuel-burning items are used are essential to maintaining health where these items are in use.

**Customer Service & Technical Hotline:**  
**(800) 521-5228**

FOOTNOTES: (1) Subramanyam AP, Ogilvie PB, Morrison RL, Gallagher RL, Bettan W. Carbon monoxide concentration of the living environment: A national survey of home air and children's blood. J Gen Int Intern. 1976;3:369-375

**CCI CONTROLS**

5052 Cecelia Street • South Gate CA 90280-3511  
(213) 560 - 6060 • Fax (213) 560 - 1136

**DETECTOR, PROPANE-ELECTRO SYSTEMS GS-2**

THIS UNIT LIKE THE GS-4 AND GS-6 WILL DETECT A WIDE RANGE OF TOXIC AND EXPLOSIVE GASSES INCLUDING PROPANE,GASOLINE,BUTANE AND LNG.

**OPERATION**

WHEN POWER IS APPLIED THE PULSED ALARM WILL SOUND AND THE RED LIGHT WILL FLASH FOR APPROXIMATELY 7 SECONDS. IF ANY OF THE ABOVE MENTIONED GASSES ARE PRESENT,THE ALARM WILL CONTINUE.

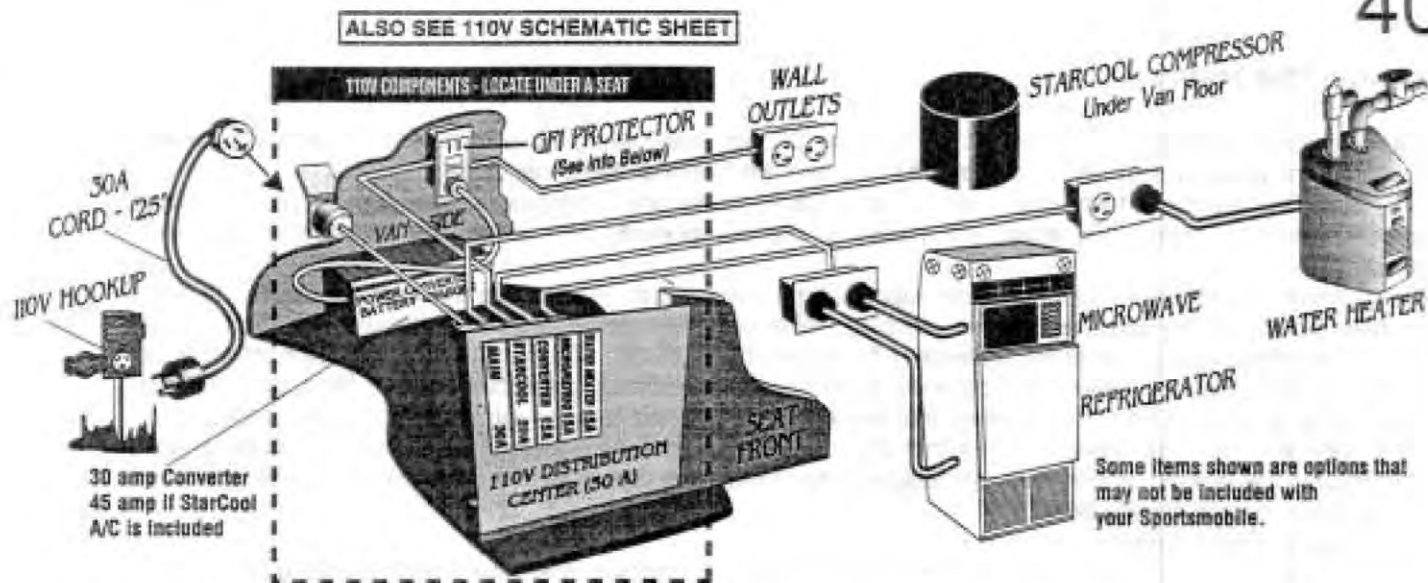
IF NO GASSES ARE PRESENT THE ALARM WILL STOP AND THE RED LIGHT WILL REMAIN ON,INDICATING THE UNIT IS IN OPERATION.

THIS IS A COMPLETELY SELF CONTAINED UNIT WITH A BUILT-IN SENSOR. THE UNIT SHOULD BE INSTALLED IN THE MOST LIKELY PLACE AN ACCUMULATION OR LEAK OF GASSES WILL OCCUR AND LIKE THE OTHER UNITS, BE KEPT DRY AT ALL TIMES.

ONCE SENSOR IS STABILIZED, IT WILL NOT RECYCLE THE UNIT UNTIL IT HAS BEEN OFF FOR A NUMBER OF HOURS.



U.S.A.: 3873 AIRPORT WAY,BELLINGHAM,WA. 98227  
BOX 9754



**HOW TO CONNECT TO PARK'S 110V HOOKUP:**

1. Flip main 30A 110V breaker off if in your Sportsmobile.
2. Connect your 30A power cord to the park 110V hookup, and to the van. Check that park 110V hookup breaker is on.
3. Flip main, 30A 110V breaker on in your Sportsmobile. Note: - if you are operating from a generator, wait 5 minutes before you flip the main breaker on.
4. You now have 110V power to your 110V appliances and wall outlets.
5. If you use the power cord adapter, your available power will be reduced from 30A to 15A. This adapter permits you to connect to a 15A park hookup. The use of the A/C or appliances may be restricted. Do NOT use extension cord.
6. To reset a tripped circuit breaker, flip it off, then back on.

**INVERTER**

1. If you have this option, you must turn it on to supply power to the Extra Battery. The red light will flash slowly.

**GFI PROTECTOR**

1. To protect you from line to ground electric hazards, a GFI Interrupting Receptacle has been installed. It protects wall outlets that are exposed. The concealed wall outlets for such items as the Microwave and Refrigerator are not GFI protected.
2. If the power at one of these 110V wall outlets fails, without affecting the circuit breaker serving that outlet, push the "reset" button to restore power. See above drawing.
3. If the GFI Interrupter cannot be reset, disconnect the appliance connected to it and then reset. Repair any defective appliance before further use. If the receptacle will not reset when there are no appliances connected to it, have a qualified electrician check the GFI outlet.
4. The GFI Interrupter must be tested at least once every month. 110V power must be present to properly test.
  - A. Push "test" button. The "reset" button should pop up 1/16 inch minimum, from flush position, which indicates that power to the protected circuit has been discontinued and it is okay.
  - B. If the "RESET" button does not pop up when the test button is pushed, a loss of ground fault protection is indicated. It is not OKAY. DO NOT USE. Call a qualified electrician.
  - C. To restore power after testing, push the "reset" button.
5. This ground fault circuit interrupting receptacle is designed to help protect people from the hazards of line to ground electrical faults. It does not prevent electric shock, but limits the shock time. This protection is afforded to people using tools or appliances operating from the receptacle.
6. Outside Sportsmobile 110V outlet - this option is also protected by GFI interrupter.

**APPLIANCES**

1. ALL 110V appliances are protected by circuit breakers.
2. To reset a tripped circuit breaker, flip the breaker off, then on.
3. It is possible to trip the 30 amp main breaker if all the appliances are operating simultaneously. If this occurs, simply turn off any of the appliances you do not need, and reset the main breaker.
4. If individual circuit breakers trip, reset. If the breaker continues to trip, have a qualified electrician check the appliance or breaker.



**WARNINGS, FOR YOUR SAFETY...**

1. Your electrical system of 110 volts AC or 12 volts DC has been designed and installed in accordance with the safety requirements of ANSI Standard A119.2 and the National Electrical Code.
2. Only qualified electrical technicians should attempt to make any changes or additions to your electrical system, and then using only approved materials and components and employing approved methods of installation.
3. An approved power supply cord has been supplied with the vehicle. Always use this cord for hookup to 110V source. Note that the cord has a three pin plug which provides proper grounding through the third (round) pin. Grounding is your personal protection from electrical shock. Do not use any adapter, cheater, or extension cord that will break the continuity of the grounding circuit connected to that third pin. NEVER remove the grounding pin for convenience of being able to connect to a non-grounding (2-prong) receptacle.
4. Never operate your Sportmobile with a "hot skin". If you can feel even a small shock from the vehicle while standing on the ground, you should immediately disconnect the Sportmobile from power source and have an electrician locate the trouble.
5. Do not use two-wire cords.
6. Be sure to unplug your 110V power cord from the outside 110V hookup and stow it before driving off.

**110V ADAPTER**

1. The Std Equipment 30 amp to 15 amp Adapter is an approved 3 pin adapter that will permit you to plug into a standard household 15 amp type outlet. Note: - some of the older parks only offer 15 amp hookups.
2. Due to certain electrical variables, a 15 amp outlet may not supply enough power to operate the Air Conditioner, Water Heater or Microwave. If any of the 110V appliances do not operate properly, turn the appliance off, as the 15 amp outlet is not adequate.

**SGW (SOMETHING GONE WRONG) - NO 110V POWER INSIDE SPORTSMOBILE**

1. First, check the 110V distribution panel - are circuit breakers in the "on" position?
2. Second, verify you have 110V power in your Sportmobile. You can do this:
  - A. If you have a Microwave option, the indicator light should be on.
  - B. Check the reading on the 12V Gauge when plugged into a 12V outlet - the needle should be in "low or normal" charge range.
  - C. Plug an appliance into a 110V wall outlet to see if it operates.

**SGW - CIRCUIT BREAKERS, 110V**

1. If Circuit Breakers continually "trip" off, check for an overloaded circuit, for instance, is a hair dryer and hot plate on at the same time? All 110V appliances and visible wall outlets are protected with circuit breakers.

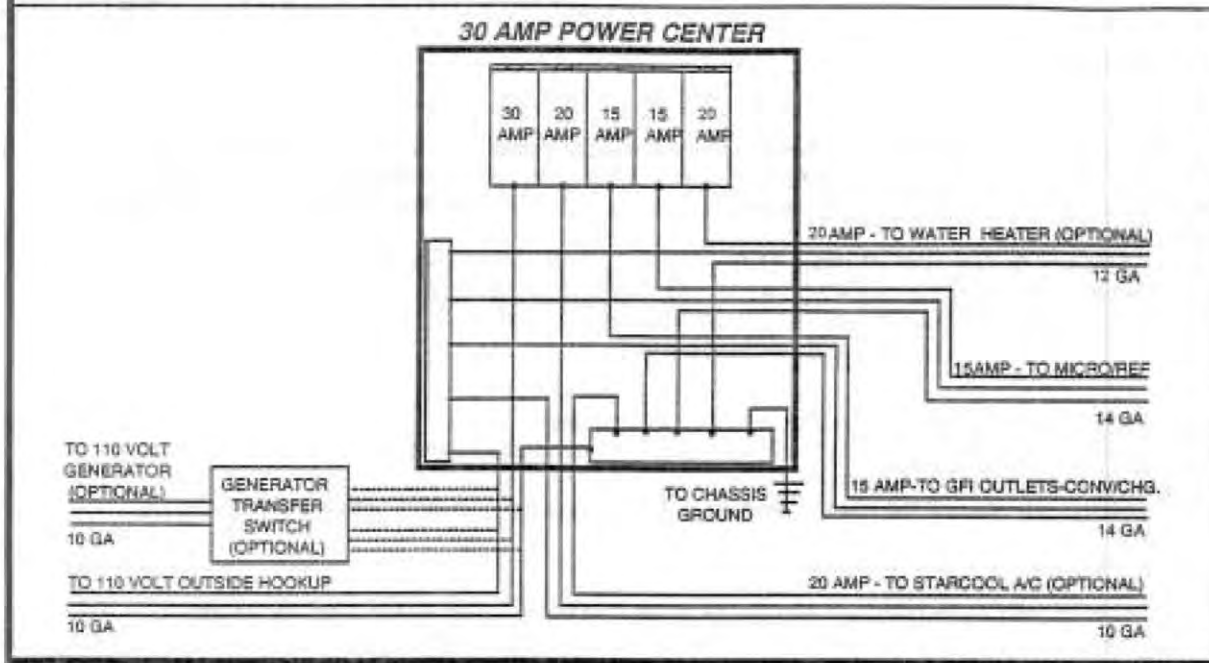
**SGW - WALL OUTLETS, 110V**

1. If no power at outlet, check power cord connections at van and hookup.
2. Verify the 110V circuit breakers are "ON".
3. Verify GFI outlet is not "tripped" off. (See "Electrical-110V" sheet for GFI information).
4. Contact a qualified technician.

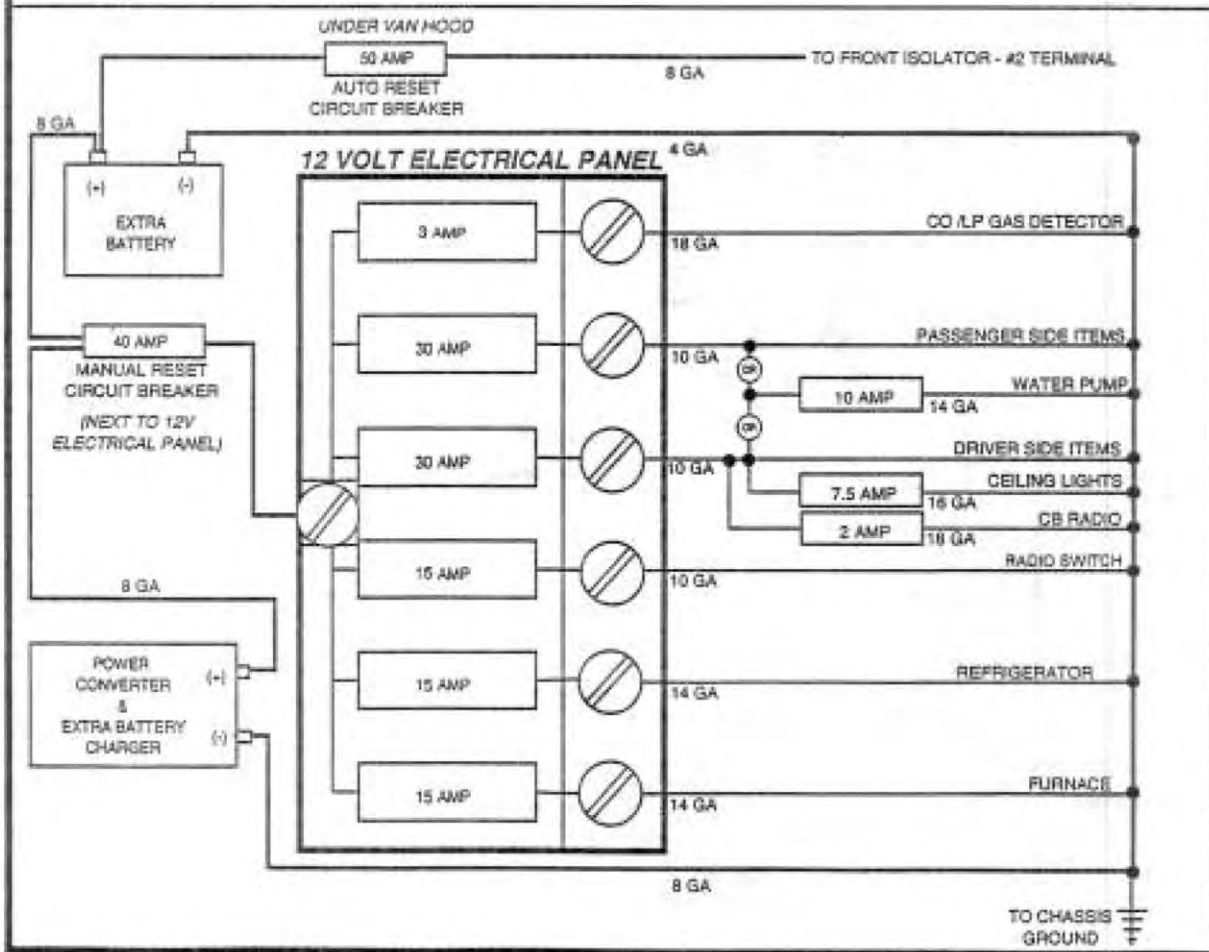
**SGW - MICROWAVE**

1. Verify 110V power is going to Microwave. (Option)
2. If digital display on the Microwave is operating and the Microwave does not heat, the Microwave may be defective.

# 110V SCHEMATIC



# 12V SCHEMATIC





## HOT WATER HEATER - 110V ISE

## GENERAL

1. The 1500 watt heating element in your ISE water heater will recover approximately 8 1/2 gallons per hour through an 80° F temperature rise. Temperature rise is the difference between the temperature of the cold water coming into the heater, and temperature leaving the heater. Consequently, it takes approximately twenty minutes to heat the tank contents when filled with cold water.
2. Tank volume 2.5 gal., Amps 12.5, Temperature range 110° – 170° F, Operating pressure 150 PSI max.
3. **WARNING** - For more detailed safety and operating instructions, please see ISE's literature. Do not store flammable materials near water heater. Water temperature over 125° can cause severe burns.
4. It is recommended to leave the water heater off until you need hot water.

## OPERATION

1. Turn on water supply. Open hot water faucets to push air out of water heater.
2. Check that water flows through faucets, no leaks and no discharge from temperature and pressure relief valve.
3. To start the heating cycle, move switch to position ON.
4. The thermostat will automatically shut off the heating element when the selected operating temperature is reached.

## WINTERIZING

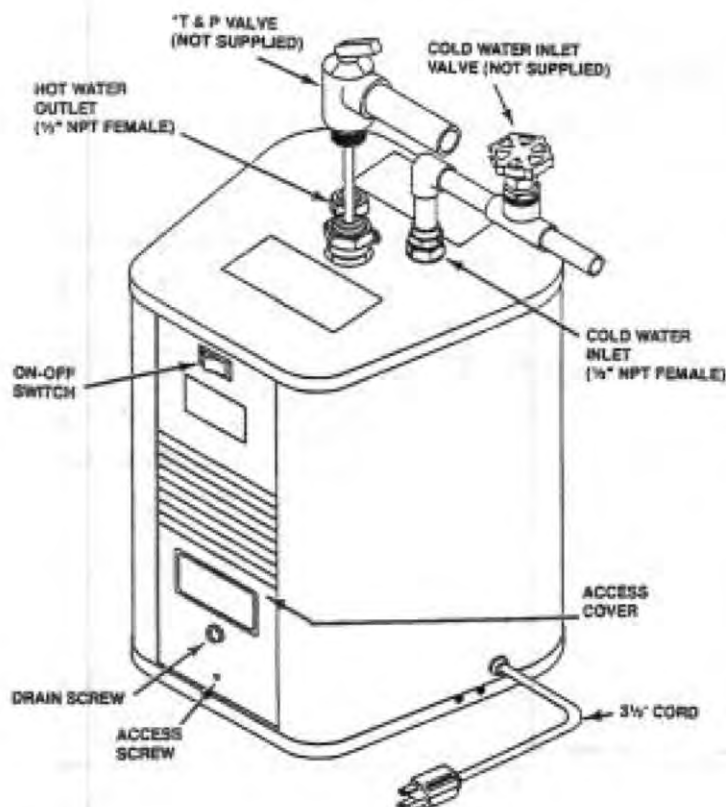
1. You can add potable anti-freeze to water supply.
2. You can also drain the heater with water pump off and no city water connected, open faucet controls, loosen drain plug on side of water heater, making sure water is draining into drain pan and then to ground.

## MAINTENANCE

1. Do not attempt to repair water heater. Call you authorized dealer for service.
2. Drain yearly to remove sediment build-up.

## SGW (SOMETHING GONE WRONG)

1. If hot water does not run out of faucet -- check power supply connection. Be sure switch is on.
2. Check the circuit breaker for the heater. If the breaker has tripped, have the circuit checked by an electrician to determine if the circuit is overloaded, or if a short exists.



**GENERATOR, ONAN 2.8 KW**

**SPORTSMOBILE HAS REWRITTEN THE MANUFACTURERS INSTRUCTIONS IN AN EFFORT TO MAKE THEM EASIER TO FOLLOW.**

1. **WARNING** - These sheets are to be considered only as supplements to the manufacturers literature not replacements. It is important that you read and understand all of the manufacturers literature before operating any of these items. Sometimes a supplier will change information and these sheets may not be current. Should there be any conflict with Sportsmobile sheets – follow the manufacturers instructions.

**ONAN OPERATOR'S MANUAL- PLEASE SEE FOR COMPLETE INFORMATION****PRE-START CHECKS - SEE ONAN WARNINGS IN ONAN OPERATOR'S MANUAL**

1. Before starting, open generator access panel/door and perform visual inspection of unit and exhaust system. Look for loose or damaged components and fasteners. Correct as necessary.
2. Confirm that vehicle is not parked in high grass or brush. DO NOT operate the generator if exhaust gases will not effectively expel away from vehicle.
3. Lubrication. Make sure the generator is level when checking the oil. Keep oil level to the "full" mark on the dipstick. Do not overfill. Refer to ONAN's manual maintenance section for the proper procedures.

**STARTING PROCEDURE**

1. Depress the star/stop switch – hold until the lamp on the switch becomes steadily lit – indicating that the generator is operating. Do not let starter switch engage for more than 10 seconds – repeat.
  - A. If you held the switch at the start position for ten seconds and the lamp does not become steadily lit – release the switch. Wait two minutes – try again. If the second attempt does not start the generator set, start the unit at the set control. Failure to start at remote control may indicate an open circuit in the remote wiring. Contact a RV dealer for assistance.
  - B. After the generator is running – the automatic transfer switch will engage. After a delay of 40 seconds the generator should be warmed-up and maintain a constant RPM.
2. Your generator is equipped with an "automatic switch over device".
  - A. Automatic switch over – Switch from power cord to generator simply by starting generator.
  - B. Built-in delay – 40 second (nominal) delay prevents starting generator under load, which allows necessary engine warm-up before transfer.
3. You can now start applying a load. See the approximate power requirements of common appliances, (back side of this sheet).

**FUEL CONSUMPTION:** No load - 0.2 gph. Half load 0.3 gph. Full load 0.43 gph.

**TO SHUT DOWN**

1. Turn off all 110V items.
2. Allow generator to run 3 to 5 minutes to cool down. Failure to allow the generator to cool down may cause engine run-on or backfire.
3. Press Stop switch.

**GENERATOR SHUT DOWN:** The generator is designed to shut down (run out of gas) when the vehicle fuel level drops to approximately 1/4 tank. Add fuel to vehicle fuel tank to resume operation.

**WARNINGS - ALSO SEE ONAN'S MANUAL:**

1. Never sleep in vehicle with the generator running unless the vehicle interior is equipped with an operating carbon monoxide detector.
2. Exhaust gas is hazardous and may cause injury or even death. Make sure all the exhaust components are operation worthy and secure.
3. Fire can cause severe personal injury or death. Do not operate the generator when the vehicle is parked in high grass or brush.
4. Exhaust gases can cause severe personal injury or death. Never operate the generator set unless the exhaust system is clear of walls, snow banks, or any obstruction that can prevent exhaust gases from dissipating. Never operate any exhaust fan in the recreational vehicle when the generator set is running. It can cause exhaust gas to be drawn into the vehicle interior.
5. Hot oil can cause severe burns if spilled or splashed on skin. Keep fingers and hands clear when removing oil drain plug, and wear protective clothing.
6. Fuel presents the hazard of fire or explosion which can cause severe personal injury or death. Do not permit any flame, spark, pilot light, cigarette, or other ignition source near the fuel system. Keep a type ABC fire extinguisher nearby.
7. Contact with hot engine parts can cause severe burns. Use caution when access cover is removed to avoid contacting hot engine parts.

**CAUTION**

1. Operation of the generator set with the access cover removed can cause equipment damage. Generator set cooling air does not circulate properly with the access cover removed.
2. Continuous generator set overloading can cause high operating temperatures that can damage the generator windings. Keep the load within the nameplate rating.

**EXHAUST FANS** – Never operate if you have a generator running as exhaust gases could be drawn inside the van.

| Appliance or Tool            | Approximate Running Wattage |
|------------------------------|-----------------------------|
| Air Conditioner              | 1400-2000                   |
| Battery Charger              | Up to 800                   |
| Coffee Percolator            | 500-700                     |
| Converter                    | 300-600                     |
| Electric Blanket             | 50-200                      |
| Electric Broom               | 300-500                     |
| Electric Drill               | 250-750                     |
| Electric Frying Pan          | 1000-1500                   |
| Electric Iron                | 500-1200                    |
| Electric Stove (per element) | 350-1000                    |
| Electric Water Heater        | 1000-1500                   |
| Hair Dryer                   | 800-1500                    |
| Microwave Oven               | 1000-1500                   |
| Radio                        | 50-200                      |
| Refrigerator                 | 500-1000                    |
| Space Heater                 | 1000-1500                   |
| Television                   | 200-600                     |

**CONTROL PANEL**

The following section describes the function and operation of the generator set controls. The generator set control panels are shown in Figures 3 and 4.

**Control Components**

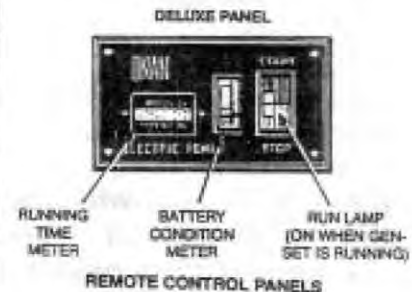
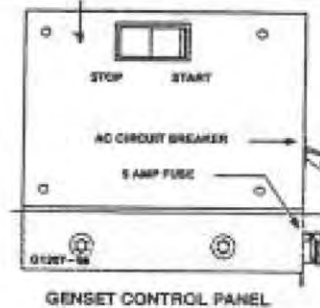
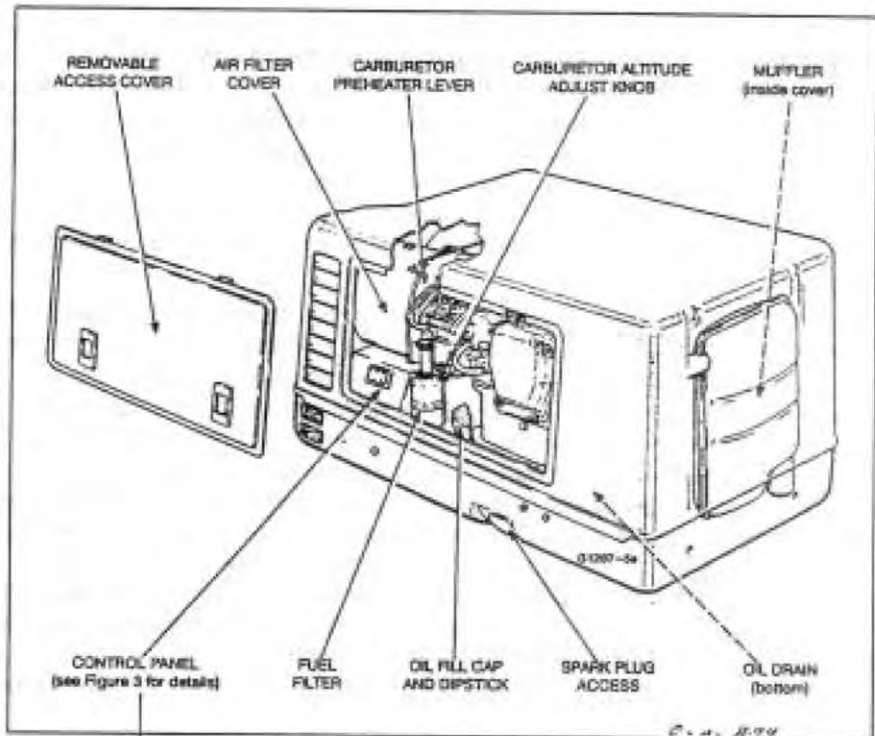
**Start/Stop Switch:** Start and stop unit locally. The unit can also be operated from an optional remote control wired to the control panel.

**Control Fuses:** Provide protection for the control box wiring and remote wiring from short circuit or other overload. The cranking fuse provides protection while the generator set is running.

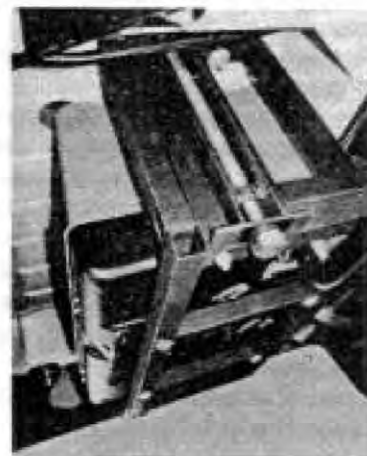
**Line Circuit Breaker:** Protects the generator from a short circuit or other overload.

**REMOTE CONTROL PANEL (Optional)**

Optional remote controls are available for Onan recreational vehicle generator sets. The remote control allows operation of the generator set from inside a motorhome.

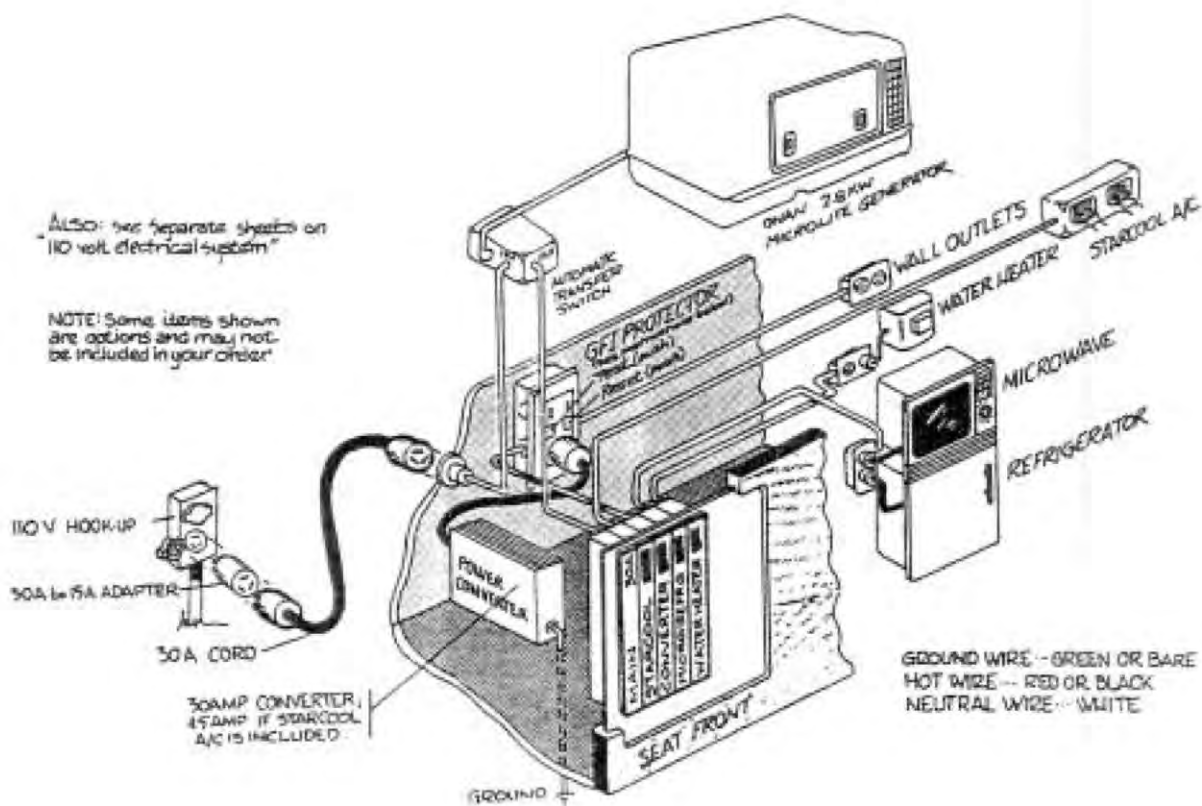
**GENERATOR UNDER VAN "LIFT"**

1. Operation – please see owners manual before lowering.
2. To lower – to change oil, fuel filter, spark plug or adjust carburetor.
  - A. Tools required – 9/16" wrench, crank handle or 1 1/8" socket and ratchet, and WD-40 or similar lubricant.
  - B. With WD-40 or similar lubricant, spray threaded shaft nuts.
  - C. Remove 4 – 3/8" nuts with 9/16" wrench.
  - D. Verify exhaust hanger bracket will not interfere with lowering generator. Remove bracket if necessary.
  - E. using crank handle provided, or 1 1/8" socket and ratchet: turn large nut on one side counter-clockwise until side lowers approximately one inch. Turn large nut on other side counter-clockwise until side lowers approximately two inches. Continue alternating sides until generator is low enough to service. One side should never be more than one inch lower than the other side.
  - F. Reverse lowing procedures to raise generator.

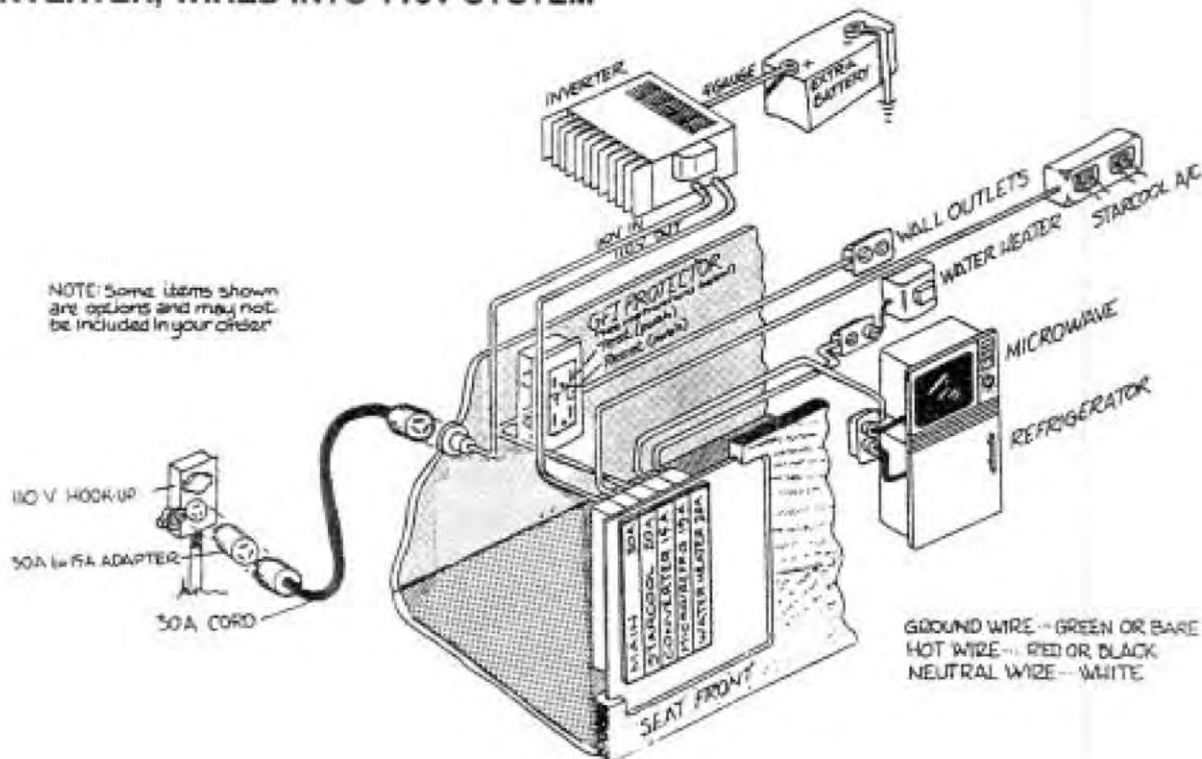


## GENERATOR, WIRED INTO 110V SYSTEM

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## INVERTER, WIRED INTO 110V SYSTEM





Include this sheet if  
Owner ordered an Inverter

## INVERTER

### GENERAL, TRACE ENGINEERING INVERTER 1512RV\*

1. Your Inverter will invert 12V power to 110V power, to power your microwave (O), hot water heater (O), computer, hand tools, etc. It will not power an air conditioner. Rated power 1500 watts at 25° C.
2. The built in battery charger will charge your Extra Battery rapidly without overcharging and will maintain the charge.
3. When an Inverter is ordered the Standard Equipment Package Power Converter/Battery charger is deleted. Credit is allowed for this change.

### OPERATION – PROVIDE 110V POWER FROM 12V EXTRA BATTERY (S)

1. Be certain Starcool A/C thermostat is set to "OFF" (you can still use the 12V feature of the Starcool A/C if the van engine is operating). Also, turn off any 110V appliances you do not want to operate, i.e., 110V water heater.
2. Push ON-OFF switch and a steady red led light will be "ON" confirming that 110V power is now available through the inverter.

### OPERATION – PROVIDE 12V POWER WHEN CONNECTED TO 110V HOOK-UP (OR WHEN GENERATOR (O) IS RUNNING).

1. Push ON-OFF switch and a blinking red led light will be "ON" confirming that the Inverter is in it's charging mode and is providing 12V power.
2. It is necessary for the Inverter to be "ON" whenever you are connected to a 110V hook-up or when the generator is "ON".

### SGW (SOMETHING GONE WRONG)

1. No Power.
  - A. The Trace Inverter has a low battery cut-off feature which prevents the Inverter from operating if the 12V Extra Battery voltage is too low.
  - B. If the Inverter needs to be operated before the Extra Batteries are recharged you can run the van engine while operating the Inverter.

**Inverter Problem – Call Trace Engineering (360) 435-8826.**

\* Inverter 2512RV is used when generator is installed.

## EXTRA BATTERY

### EXTRA BATTERY, THERMOIL 1427 - INFO

1. The Extra Battery will supply 12V power to all 12V accessories, while driving or parked.
2. The 115 amp Battery supplied is a deep cycle, heavy duty, Battery. It is specifically designed for continuous use in deep cycle applications. It can be recharged hundreds of times.
3. When your van engine is running both the van's starting battery and Sportsmobile's Extra Battery will be charged by the van's alternator. The larger the alternator, the faster the batteries will be charged.
4. To charge your Battery – start your van's engine so the van's alternator will charge the Battery. Plug into a hookup, or start your Generator, so the Battery Charger, built into your Power Converter will charge it.
5. When 110V power is supplied to the van, the Extra Battery will only have power drawn from it if the total 12V power usage exceeds the 12V power supplied by the converter.
6. Features of the Thermoil Battery: A longevity increase of 20% to 40%, no corrosion, no toxic odor, recharging of accumulators is 25% faster. Resistance to very cold or hot weather is due to the oil. North American warranty program.
7. Warning – Do not "fast charge" Battery with an "outside" battery charger while electric Refrigerator is turned on.

### FOR EXTRA BATTERY ACCESS: IF THE BATTERY IS UNDER A GAUCHO OR SOFA.

1. Two wing nuts secure the seat cushion to the seat frame.
2. For access, open door under seat. Reach through door, up under front left corner of cushion. Unscrew wing nut. Repeat right side.
3. Lift up seat cushion and slide out. See photographs showing Battery.

### EXTRA BATTERY MAINTENANCE

1. The water level of the Extra Battery will need to be checked once or twice a year, depending on usage and climate.
2. Do not let water level drop below level of plates. Use distilled water, preferably.
3. If you or a service person takes a specific gravity reading of the Thermoil Battery, simply plunge the Hydrometer below the 1/2 inch of oil layer and extract acid. Should you remove oil out of the battery, gently pour it back in and rinse your hydrometer. Make sure the fluid level is at the top and start the operation again.

### EXTRA BATTERY PERFORMANCE

1. The amp-hour value of a battery refers to the number of amps a battery will deliver over a specified period of time before the battery has discharged to a useless level – 10.5 volts.
2. Ambient temperature has a strong effect on battery performance. The "performance" of the 115 amp Thermoil is rated at around 80° F. At higher temperatures the Battery has a greater capacity. At lower ambient temperature the amp hour performance is lower. However, at higher temperatures the refrigerator will cycle more often, using more amps. At lower temperatures the cycle time will be less.

### HOW TO CONSERVE BATTERY POWER

1. **Refrigerator** - First, open the door as seldom as you can as the cold air "falls" out. It will also help to keep the Refrigerator full. If only partially full, you can wad up newspaper to fill the void. This way when you do open the door little cold air will be lost. Also keep the thermostat set as low as you can.
2. **Lights** - Use a lot of amps. Use them frugally. Florescent lights use less amps and also burn cooler.
3. **Detectors** - The 2 detectors pull .4 amps per hour or 9.6 amps in 24 hours. If you are not going to be in your Sportsmobile for an extended period of time, you can pull the 3 amp fuse from the 12V Distribution Panel.  
**Warning** - replace the fuse as soon as you re-enter the Sportsmobile.
4. **TV/VCR** - will use 6 amps per hour when being used on 12 volt power. The TV can use up to .2 amps per hour even when it is turned "off". Unplug TV to eliminate this extra power drain or turn TV rocker switch "off".
5. **Water Pump** - Draws 4 amps, only when running. When connected to city water turn pump off.
6. **Radio** - The van in-dash radio can operate with the ignition "off" whenever the radio switch is set to "Extra" Battery. Turn the radio switch back to "Main" Battery when finished listening to radio. The van starting battery can discharge if radio switch is set to "Extra" Battery. About 3 amps per hour usage on Extra Battery and 1 amp per hour on van starting battery.