

Sportsmobile

Owners

Manual

Note: This manual has been reproduced from a 2004 version sportsmobile. There has been some reformatting, the intent was to keep it as accurate as possible please refer to your supplied documentation if in question

THANK YOU FOR CHOOSING SPORTSMOBILE!

WE STRONGLY SUGGEST YOU READ THIS OWNER'S MANUAL - the literature supplied by other manufacturers, and the van's owner's manual, before using your Sportsmobile. The recommendations are all-important and should be carefully followed.

WE WILL MAIL YOU A REPORT CARD — in about 8 weeks after you take delivery. The information and constructive criticism you supply to us will be greatly appreciated.

SEPARATELY WARRANTED PRODUCTS — Sportsmobile Inc., Sportsmobile Texas Inc., and Sportsmobile West Inc., warrants only the parts manufactured and supplied by the named Sportsmobile Company, that converted your van. The listed Sportsmobile companies do not assume any responsibility or liability for defects in the workmanship or operation of the van itself or of other separately warranted products. The individual manufacturers warrant these products. A copy of their warranty and other information has been included in your owner's packet. In order to obtain repairs or replacement of these items, the individual manufacturer's warranty cards must be submitted. Some appliance serial numbers may be hidden during their installation. If they are, a copy of our dated invoice will establish the start of the warranty time.

IF SERVICE IS REQUIRED for separately warranted products — please refer to the applicable manufacturer's literature. Also see the next page.

IF YOU ARE COMING BY FOR SERVICE — please call in advance for an appointment so we can plan our time to better serve you.

WE HAVE MADE EVERY EFFORT TO MAKE THIS MANUAL AS ACCURATE

AS POSSIBLE — in order to reflect information available at time of publication. Products are constantly being changed or improved and the manufacturer may change his information accordingly. In the event of conflicting instructions or illustrations between the appliance manufacturer and Sportsmobiles, the information furnished by the respective manufacturer should be followed.

QUESTIONS/PROBLEMS — First, please, check this manual or the literature supplied by other manufacturers for your answer. If you still have a problem, do not hesitate to call us. To better serve it will be helpful, and save time', if you have your questions listed before you call.

APPLIANCE PROBLEMS? — If you do not find the answer in the Sportsmobile Owner's Manual, or the manufacturer's literature, we suggest you call the appliance manufacturer direct. The phone numbers are on the next page.

STARCOOL A/C? — For operating instructions, and troubleshooting, please see the applicable Starcool sheets in the back section of this manual.

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1 MANUFACTURER SUPPLIED ITEMS

1.1 GENERAL

Appliances and some options are supplied to Sportsmobile by outside manufacturers. 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 MANUFACTURERS OPERATING INSTRUCTIONS TO MAKE THEM MORE USER FRIENDLY

1. THESE SHEETS ARE TO BE CONSIDERED ONLY AS SUPPLEMENTS TO THE MANUFACTURERS LITERATURE 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

1.2 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.
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-0051 (3CF), Model DE-441 (4CF)... Phone 800-752-8654
 - **DOMETIC REFRIGERATORS:** Model RM 2202 (2CF), Model RM 2453 (4CF)... Phone 219-463-4858
 - **SUBURBAN FURNACE, PROPANE:** Model NT-12... Phone 423-775-2131
 - **SUBURBAN WATER HEATER, PROPANE:** Model SW6D... Phone 423-775-2131
 - **SHURFLO WATER PUMP:** Model 2088-403-144... Phone 800-854-3218
 - **THETFORD PORTA POTFI 585! MARINE TOILET BRAVURA...** Phone 800-521-3032
 - **ONAN GENERATOR:** Consult the yellow pages, or call 800-888-ONAN.
 - **POWER CONVERTER/BATTERY CHARGER:** Model PD 9155, Progressive Dynamics... Phone 616-781-4241
 - **EXTRA BATTERY, LIFELINE...** Phone 800-527-3224
 - **INVERTER, XANTREX** (Formerly Trace Engineering)... Phone 800-446-6180
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.

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 at 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.

2 **WARNINGS**

"WARNINGS" ARE TO ALERT YOU TO PRECAUTIONS THAT INVOLVE YOUR PERSONAL SAFETY AS WELL AS VEHICLE DAMAGE. READ AND FOLLOW THEM CAREFULLY.

Also see other warnings noted in this manual, van chassis manual and other manufacturer's literature.

2.1 *WARNING - POWER CORD*

Do not plug the power cord into an outlet that is not grounded, or adapt the plug to connect to a receptacle for which it is not designed.

Be sure that all three prongs of the supply cord are properly plugged into the receptacle.

Do not connect the power cord to an extension cord.

Do not connect the external power cord to any receptacle until you have used a tester to check the polarity and grounding.

It is the responsibility of the owner of the electrical receptacle to ensure that the receptacle is properly wired and grounded.

Reverse polarity and improper grounding of the vehicle can cause personal injury or death.

filled container will contain approximately 80% of its volume as liquid LP gas.

All pilot lights must be extinguished and supply valve dosed before refilling LP gas tanks or vehicle fuel tanks.

Do not smoke or expose an open flame while near an LP refueling area,

LP gas is heavier than air and extremely flammable. **Never fill** the LP tank with the engine running.

Never use an open flame to test for LP gas leaks.

Replace all protective covers and caps on LP system after filling.

Do not alter or remove LP tank gauge at any time.

Do not hold gas valve in more than 30 seconds when lighting appliances. If the flame is not indicated within this time, turn the gas at the selector switch off, and wait 2 minutes and retry. Continuing to hold the gas valve in will cause gas to build up in the burner area and can result in an explosion, which can cause personal injury or property damage. Inspect the pressure regulator vent hole periodically for blockage. If any obstruction is apparent, have the regulator serviced by your dealer or a qualified LP gas service center. LP gas regulators are installed with the diaphragm vent facing downward. Make sure that the regulator vent always faces downward to minimize vent obstruction that could result in excessive pressure, causing a fire or explosion.

WARNING - STOVE

2.2 *WARNING - GFI*

The GFI will not completely eliminate electrical shock. Small children and persons with heart conditions or other disabilities, which make them especially sensitive to electrical shock may still be injured by 110V receptacles even though protected by a Ground Fault Interrupter.

2.3 *WARNING - LP GAS*

Do not fill container to more than 80% of capacity. Make sure the motorhome is level when filling. It is possible to accidentally overfill the tank if the vehicle is not level, with the fill valve on the uphill side. Overfilling the LP gas tank can result in uncontrolled gas flow, which can cause fire or explosion. A properly

Do not turn burner control knob to “On” and allow gas to escape before lighting match. When using the range top, raise penthouse top and open a side flap to provide additional ventilation.

2.4 WARNING - FLAMMABLE LIQUIDS

Do not place LP gas containers, gasoline, or other flammable liquids inside the vehicle. LP gas containers are equipped with safety devices, which relieve excessive pressure by discharging gas to the atmosphere. Fire or explosion may result.

2.5 WARNING — FIRE EXTINGUISHER

Do not test the fire extinguisher by discharging it. Partial discharge can cause leakage of pressure or contents that would render the unit inoperative when needed. When using the fire extinguisher, aim the spray at the base of the fire.

The fire extinguisher should be inspected monthly for proper charge and operating condition. This should also be done before beginning a vacation or any extended trip

2.6 WARNING - PENTHOUSE TOP

Lock top down prior to driving — all 3 latches. Latches have screw adjustments to ensure top is snug to van’s roof.

Do not release latches or raise top when driving.

2.7 WARNING - BEDS

Do not use sleeping facilities while vehicle is moving.

2.8 WARNING - CHASSIS MANUAL

Before driving your vehicle, be sure you have read the entire operator’s manual and that you understand your vehicle’s equipment completely and how to use the equipment safely.

3 MISCELLANEOUS INFORMATION

SPORTSMOBILE POST CARDS - We are including some Sportsmobile post cards 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 contact us for a literature package. They can also see our web site. Should you run out please let us know - we will be very happy to send more.

RV CATALOG — The “Camping World” catalog is a very comprehensive RV catalog. You can get a free copy by calling 800.626.5944. This catalog will also include the addresses of their various store locations.

CAB LIGHTS — The cab 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 door is opened, switch by light must be on.

SPARE TIRE LOCKS — Keys will be attached to your van 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).

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 pleats, 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.

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 it's clips, reinstall it by twisting it into the latches. If it continues to unlatch, 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.

SUGGESTIONS

- REVIEW THIS MANUAL AND THE MANUFACTURER'S LITERATURE PERIODICALLY.
 - DELETE THE SHEETS IN THIS MANUAL THAT DO NOT APPLY TO YOUR CONVERSION.
 - KEEP THIS MANUAL IN A CONVENIENT LOCATION FOR QUICK REFERENCE. ONE POPULAR LOCATION IS IN THE CAPTAIN'S SEAT BACK POCKET.
 - BUCKLE UP!

Notes

4 PENTHOUSE TOP

4.1 TO ELEVATE

1. Unlock front and rear latches, unhook the front and rear bed hooks. This will lessen the weight of the top and make it easier to raise
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 of front screen when the top is raised.
WARNING: Do not operate the top if you have a neck, back or some other physical problem as it could aggravate your condition.
4. To lower the bed. First, unhook the rear of the bed and carefully lower to the bottom support rails. Then unhook the front and lower. The bed can be slid to the front or rear of the top opening.

4.2 TO LOWER

1. Close front flap and vinyl side windows. If you do not close the front flap 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. 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.
4. Pull down. Do not pull down too fast, as this will cause the sidewalls to "balloon" out.
5. 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 photo' below.
6. Lock front and rear latches.

WARNING: Lock top down before driving.

4.3 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.
-

4.4 MAINTENANCE

1. There's really little to do.
2. Occasionally you may need to adjust the 3 lock down latches by turning the "J" bolt hooks. When the top is locked down, all 3 latches should be snug.
3. The sidewalls should be washed with warm soapy water occasionally.
4. Every 6 months or so the rubber bumper around the penthouse shell should be sprayed with silicone.
5. Decorative plastic caps on top of the penthouse shell can deteriorate over time. Please call Sportsmobile to have free replacement caps sent.

WARNING: Do not loosen the lock-down "J" bolts to less than 4 threads



5 SEATS/BED

5.1 GAUCHO & DINETTES L & W

5.1.1 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.

5.1.2 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.

5.1.3 SEAT BELTS

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

5.1.4 STORAGE ACCESS

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

WARNING - Secure seat backs when traveling. **BUCKLE UP!**

5.1.5 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 To swivel the drivers seat you may have to open the drivers door until the seat is then in a position where you can close the door..

WARNING - Seat backs must be upright and facing forward when traveling. Buckle up.

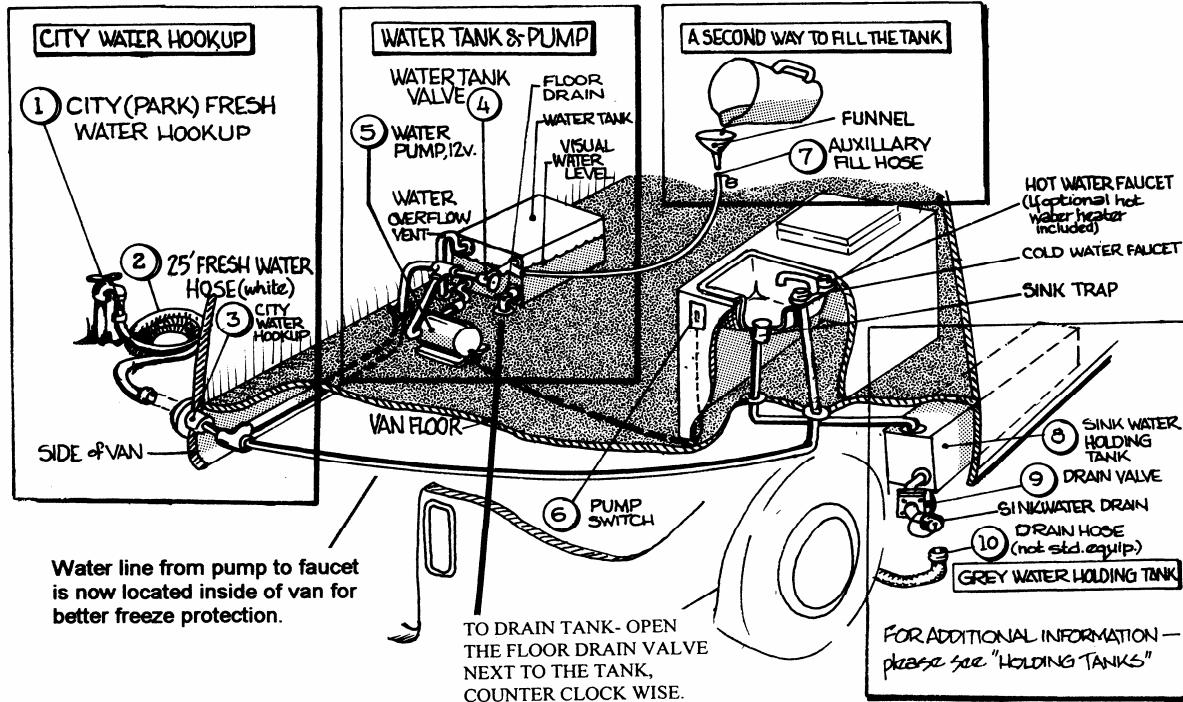
5.1.6 REMOVEABLE CAPTAIN SEATS

1. Unclip shoulder harness from top seat belt mount.
2. Slide seat all the way forward and recline seat back all the way to 90°
3. At the front of the seat base, loosen the black hand bolt. Lean seat and base back 45° then lift seat and base up. Seat and base weight about 70 lbs., use caution.
4. Snap carpet mat over floor mount.

5.1.7 TO REINSTALL SEATS

1. Remove carpet mat from floor mount and line seat base rear legs with floor mount.
2. Lean seat base forward 90° and tighten hand bolt clockwise. Make sure bolt is tight.
3. **WARNING** — Clip shoulder harness to top belt mount, make sure belt is dipped in securely.

6 FRESH WATER SYSTEM



6.1 TO CONNECT TO A CITY WATER HOOKUP

1. Water Pump — switch “off” whenever connected to city water.
2. Connect fresh water hose to city (park) water connection (1).
3. Fill hose with water, then turn water “off”. This will keep air out of water lines in van.
4. Connect hose to outside water hookup in side of van (3).
5. Turn water back “on”. You now have water to your sink and options such as the water heater, shower and marine toilet

6.2 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 your 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.

6.3 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.

7 WINTERIZING

TO DRAIN THE FRESH WATER SYSTEM

1. Fresh water tank — open valve next to tank through van floor.
2. City water connections — open the valve next to the connection “under” the van. This is the lowest point of the complete fresh water system.
3. Faucets — open both.
4. Water pump — turn on, pump out tank and water heater (110V or propane). Let pump run until “dry” (for a few minutes).
5. Water pump — to drain any remaining water out of the pump, remove the outlet hose on the pump. Turn pump on. Use a rag or towel to catch water. Re-attach pump hose.
6. 110V water heater — after the system is drained, some water will remain in the bottom of the heater. To drain this water, remove the lower plug.
7. Propane water heater — remove anode rod to drain tank (see manufacturer’s manual supplied with water heater). Be sure pump is off and faucets are open, otherwise the pressure will blow water and anode rod out.

TOILET, HOLDING TANKS

1. I . Porta Potti — see page 1 6.
2. Marine toilet — pour RV antifreeze into toilet and flush into black holding tank.
3. Grey and black holding tanks — see page 1 4.

USING RV ANITFREEZE

1. I . RV antifreeze is available at RV stores, Good Sam, Camping World, etc., to prevent freezing of your water system. Follow the manufacturer’s instructions. **WARNING — do not use “automotive” antifreeze. as it is toxic**
2. Pour RV antifreeze in fresh water tank, turn on water pump. Open cold side of faucet until you see antifreeze, then open hot side until you see antifreeze. If you have a shower or marine toilet run those until you see antifreeze. Water tank, lines and holding tanks are protected.
3. Water heater — do not run RV antifreeze into the water heater. Use the bypass valve installed to the heater to prevent this.
4. To de-winterize, follow the instructions on the container.

USING SYSTEM IN FREEZING WEATHER

1. 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 tanks and pump assembly are normally protected from moderate freezing as long as there is some heat in the van.
2. Pour RV antifreeze into your sink to flow into your grey water tank to protect it. This will also protect your drain trap (p-trap). If you have a marine toilet, pour RV antifreeze into the toilet and flush into the black water tank.

REFILLING SYSTEM WITH FRESH WATER

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 SPUTTERS

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.

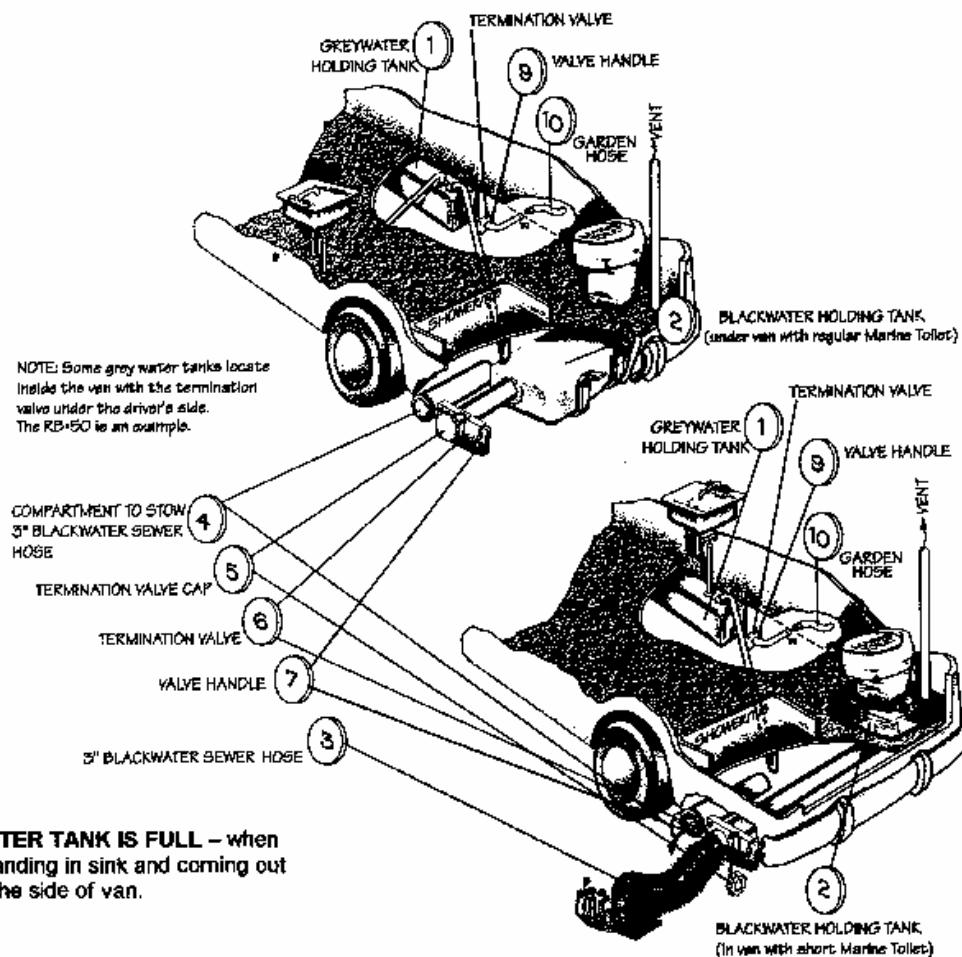
ABNORMAL CYCLING

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 the switch replacement kit # 94-230.

HOLDING TANKS



GREY WATER HOLDING TANK, FOR SINK AND SHOWER WATER

1. 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.
2. If your Sportsmobile includes a black water holding tank, the termination valve will be on the driver's 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 is approved RVIA codes.
2. The drainage system basically uses properly sized ABS plastic piping and fittings connected to sinks, toilet and holding N. 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 Sportsmobile should be reasonably level for best operation of the system.

10 DUMPING GREY & BLACK HOLDING TANKS

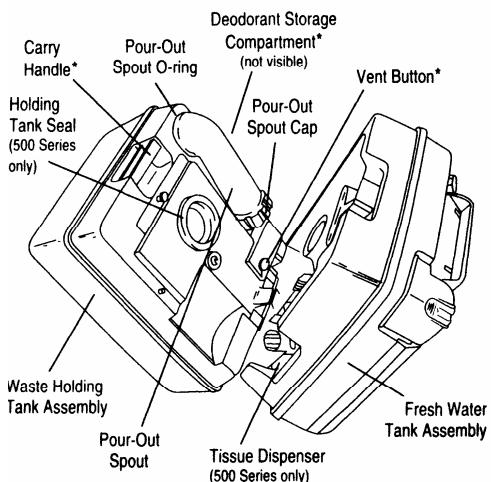
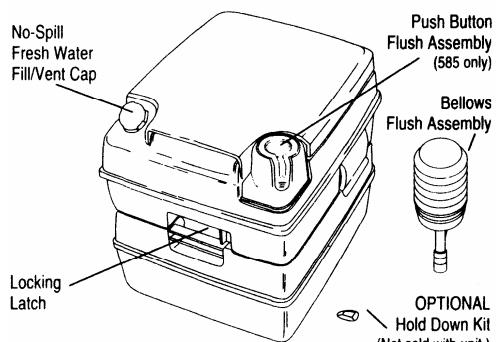
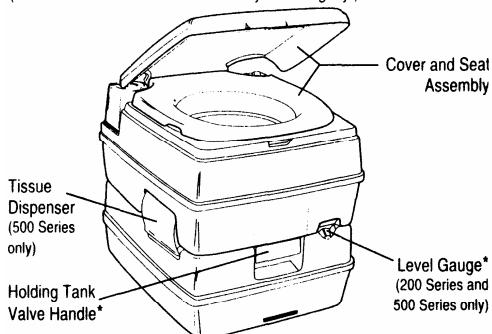
1. Waste holding tanks are usually dumped while connected to a sewer rise connection at a travel park. You may need to use other dump facilities from time to time. It is best to carry along various RV campground guides such as Woodall's, Rand-McNally or Good Sam for their listing of dumping facilities

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, alcohols or strong bleaches to clean the holding tank as they can cause damage to the plastic tank and drain lines.

2. 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.

Porta Potti Features

(Porta Potti 585 shown. Your unit may differ slightly.)



*Item sold only as part of Holding Tank Assembly

Preparing the waste holding tank for use

Fig. 1

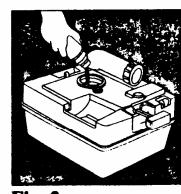


Fig. 2

Operating Instructions

Stand unit up vertically on front end with locking latch facing upward. Slide latch to unlock and separate units (Fig. I).

With lower tank sitting flat on the ground, open valve by pulling handle out. Remove Thetford holding tank deodorant from built-in storage compartment (sample included with product). Add proper amount of deodorant (Fig. 2). Add a small amount of water to cover tank bottom. Close valve and replace deodorant.

Secure upper section to lower section by aligning the "breakaway" hinge with the front interlocking tabs. Slide locking latch to secure unit. (Some models have an "automatic latch" which allows the two sections to be secured by placing the upper section directly over the lower and pushing straight down.)

Remove the waterfill cap and fill fresh water tank (upper section) with water (Fig. 3). (Never add holding tank deodorant to fresh water tank.) Replace cap. Your portable toilet is now ready for use.

It is recommended that, before each use, you open and close the holding tank valve (the flushing process) with the seat cover closed. This will vent any pressure that may have built up as a result of heat or altitude, and will prevent the bowl contents from splashing upward during flushing operation.

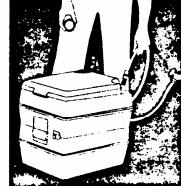
Filling the fresh water tank

Fig. 3

USE AT HIGH ALTITUDES

Let the holding tank portion adjust to altitude difference, then open the flush valve with the lid down

Porta Potti 585 Battery installation and replacement

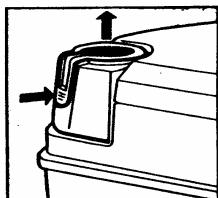
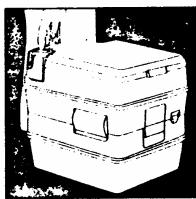


Fig. 5

CAUTION
Unless otherwise noted by the manufacturer, alkaline batteries may explode or leak if recharged, disposed of in a fire, mixed with different battery type, or inserted incorrectly. Replace all batteries at the same time.



**Fig. 4b
Electric Flush**

For the electric flush, the flush will continue as long as the button is pressed.) A fast, efficient, fresh water flush is achieved by pressing the bellows or button quickly several times. This action results in the best available bowl rinse and efficient use of water.

Note: Avoid leaks by closing the handle all the way — until it clicks into place and the vent hole is completely white.

The Electric Flush requires six (6) "AA"-Cell alkaline batteries. To avoid possible damage to the unit, and voiding of your warranty, use only "AA"-Cell alkaline batteries.

To install or replace batteries, remove the battery pack by pushing in on the bottom and pulling straight up (Fig. 5). Insert new batteries by placing batteries with the negative (-) poles against the springs in the battery holder. (Refer to the diagram on the battery holder.)

Replace the battery pack by repositioning the Assembly over the battery compartment and pressing straight down until the battery pack is fully snapped in place.

For storage, remove and store the batteries in a cool, dry place. To avoid possible permanent damage, do not leave the batteries in the unit for extended storage. Refer to the battery manufacturer's stated recommendations for proper usage.

Emptying the waste holding tank (500 Series Only) The waste holding tank in lie 200 and (5) Series is ready to be emptied when the waste level indicator has changed from green to red (Fig. 6). For (X) Series tanks, the waste level is observed

Fig. 6 (200 and 500 Series Only) opening the holding tank valve handle. DO NOT ALLOW THE TANK TO BECOME OVERFILLED.

1. Make sure waste valve handle is in the closed position.
2. Slide the locking latch to unlock tank and lift the fresh water tank (upper section) from waste holding tank.
3. Carry unit to permanent toilet facility. Remove cap. Press air relief valve with thumb while emptying unit (Fig. 7).
4. Rinse holding tank and recharge as described under operating instructions.
5. Reassemble unit and it is ready to use again.

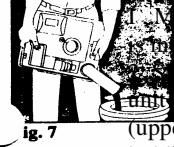


Fig. 7

Refilling tissue paper dispenser (500 Series Only)

After separating the fresh water tank and waste holding tank, place the fresh water tank on its front edge. While steadyng the tank with one hand, rotate the tissue dispenser past its detent position and unthread it from the four (4) track pins. Replacement is accomplished by reversing above steps.

Spread the tissue dispenser ends apart to remove the empty tissue tube. Install the new roll by spreading the ends.

CAUTION: Overspreading will result in damage to the tissue dispenser

Easy Care & Cleaning

The unit has a top section which includes the seat, cover, bowl, flushing bellows (battery operated flush assembly on Porta Potti 585) and a fresh water storage tank; and a lower section which is an odor-tight, gas-tight detachable waste holding tank. The unit is made of high-impact polypropylene and has an "easy care/easy clean" finish.

For cold weather use, to prevent the water from freezing, add anti-freeze to the fresh water supply tank. Refer to the chart on the anti-freeze container to obtain the desired level of protection. Use a non-toxic (propylene glycol) type anti-freeze. Flush one to two times to winterize the pump and prevent damage. Add deodorant chemical to the waste holding tank.

Use Thetford's Aqua-Bowl to clean the plastic seat, tanks and bowl. The seat and cover snap off for added convenience when cleaning.

DO NOT USE SCOURING POWDERS, ACIDS OR CONCENTRATED CLEANERS, WHICH CAN DAMAGE PLASTIC PARTS AND RUBBER SEALS.

Empty fresh water holding tank completely. (For the Porta Potti 585, press the flushing button down and hold momentarily to assure that the water is out of the pump. Pour water released by the pump from the fresh water holding tank.)

Pour 1 oz. of deodorant chemical into the waste holding tank and mix with one gallon of cold water. Shake tank. Pour out and rinse the tank with cold water. Do not use hot water to clean the tanks. With both tanks empty, place the unit into storage.

For the Porta Potti 585, remove and store the batteries in a cool, dry place when storing the unit. To avoid possible permanent damage, do not leave the batteries in the unit for extended storage. Refer to the battery manufacturer's stated recommendations for proper use.

Using Holding Tank Deodorant



Cleaning and Maintenance



Storage

IMPORTANT NOTE

To avoid possible damage due to freezing, be sure that all of the water has been removed from both holding tanks and the pump assembly prior to placing the unit in storage.

Record Your Product ID Information Here

MODEL :
PART NO :
CODE :

Questions...

about your toilet or this Owner's Manual?

Simply call Thetford's
Customer Relations Department at
1-800-521-3032

12 PROPANE SYSTEM

Sportsmobile has rewritten the mfg.'s instructions in an effort to make them easier to follow

WARNING These sheets are to be considered only as supplements to the manufacturers literature 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

12.1 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.

12.2 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 (outage). 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 regulator

11. Valve information supplied by appropriate manufacturer.

12.3 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.

12.4 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, and when re-fueling to prevent any accidental ignition of gasoline fumes.

12.5 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.

13 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 with 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).

13.1 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 1 1" W.C. because it does not have to adjust to varying inlet pressures.

13.2 PURGING AIR FROM LP-GAS CONTAINERS

6. 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.
7. 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.

13.3 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.
6. 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 filled then check for leaks to ensure proper and safe operation. If LP 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.
7. Freezing Weather, open the valve very slowly to prevent the regulator from freezing. This will prevent gas flow to your furnace and other propane appliances.

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 with.
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.

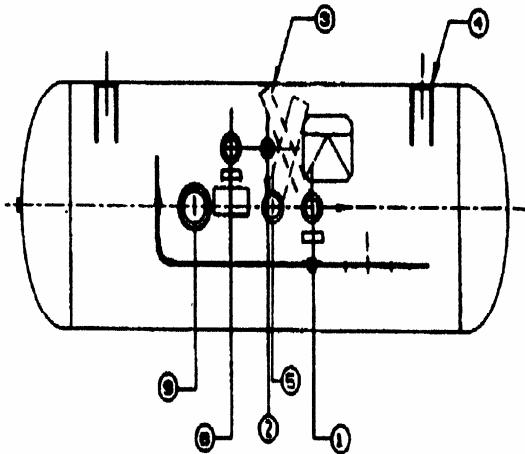


FIG. NO. 1
ASME Horizontal Motor home tank

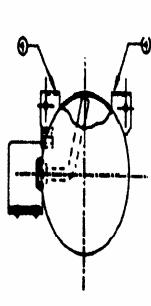


FIG. NO. 2
Side View FIG. NO. 1

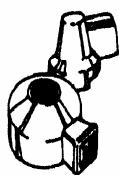


FIG. NO. 6
Regulator covers required on all exposed regulators.

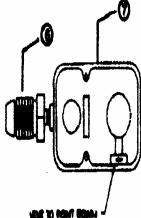


FIG. NO. 8
Two-stage regulator required on all RV's.

LP GAS WITH THE STARCOOL AIR CONDITIONER

The 40 lb propane tank has a net fill capacity of 80% or 32 lbs which equals 8 G. When the Starcool A/C is installed, a smaller propane tank is used. This is due to the decreased space as the Starcool A/C compressor takes up some space. The smaller tank is a 28 lb tank with a net fill of 22 lbs or 5.5 G.

ADDITIONAL PROPANE INFO 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 APPUANCES 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 ma 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:

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

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 stovetop burner uses 5000 BTU per hour. 5000 BTU divided into 691 ,200 BTU = 138 hours of continues use.

		CONTINUOUS HOURS"	CONSUMPTION
	26 Lb Tank		40 Lb Tank
"HEAVY"	21 Lb Net Fi1115.5 Gal.		32 Lb Net Fill/8 Gal.
APPLIANCE:	CONSUMPTION	453,600 BTU	691 ,200 BTU
Water Heater	8500 BTU	= 53 Hrs	= 81 Hrs
Refrigerator	1320 BTU	= 344	=523
Furnace	12,000 BTU	= 38	= 58
Each Stovetop Burner	5000 BTU	= 91	= 138
"Propane" Generator	No Load	= .8 Lbs Per Hour	
	1/2Load	= 1.5 Lbs	
	Full Load	= 2.3 Lbs	

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

15 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 manufacturer's literature before operating the furnace. Sometimes a supplier will change information and these sheets may not be current. Should there be any conflict with Sportsmobile sheets — follow the manufacturer's instructions.

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

NOTE: During initial firing of this furnace a burn 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 b smell next b the floor because some gas is heavier than air and will settle one

WHAT TO DO IF YOU SMELL GAS

- . Extinguish any open flame.
 - . Evacuate al 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 vehicles 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. 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 al 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 valve to OFF. This furnace is equipped with a valve shut switch. With switch in OFP 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 then air; therefore to better dear out any gas, the heater should be operated for five (5) minutes with the blower on and the gas off.
8. Turn shut 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. Se the thermostat lo lowest setting, then move "ON/OFF" lever located on bottom of thermostat to OFF position.
2. Turn off al electric power to the appliance if service is to be performed.

3. Turn shutoff 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 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



Suburban
Manufacturing Company

- 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 advice.
 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 b by idling engine or with converter/charger if 110V power is available

The information below has been copied from Suburban's Manual. It's important that you read and understand j of the supplied manufacturer's literature before operating the water heater. Sometimes a supplier will change information and these sheets may not be current. Should there be any conflict with Sportsmobile sheets — follow the manufacturer's instructions

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

OPERATING INSTRUCTIONS

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

- . Do not try to light any appliance.
- . Do not touch any electric switch.
- . Do not use any phone in your building.
- . Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- . If you cannot reach your gas supplier, call the fire department.

- C. This is an automatic gas valve, no adjustments are necessary. Do not attempt to repair the gas valve. This 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. E. Before operating water heater, check the location of the vent to make sure it will not be blocked by the opening of any door on the trailer. If it can be blocked, do not operate the water heater with the door open.

OPERATING INSTRUC11ONS

1. STOP! Read the safety information provided.
2. Turn off all electric power to the appliance.
3. Turn OFF" gas supply.

4. Wait five minutes for gas to clear the area. If you smell gas then STOP' Follow instructions in item B of the safety information. If you don't smell gas go to next step.

5. Turn ON" gas supply.
6. Turn on electrical power to the appliance.
7. Turn switch to "ON" position. If the burner does not light, the system will automatically attempt two more tries for ignition before lock

NOTE: Each ignition cycle will have a 15 second purge before spark cycle , System is a three try system.

8. If lockout occurs before main burner lights. turn switch to wait five seconds and turn switch to ON" position. This will restart the ignition cycle.

The first start-up of the heater may require several ignition cycles before all air is purged from the gas .lines.

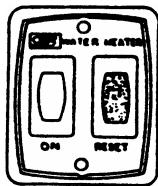
OPERATING INSTRUCTIONS WITH ELECTRIC ELEMENT

Electric water heaters are designed to operate with a minimum amount of service problems; however, proper operation and care is essential By far the most common trouble with electric water heaters results from energizing the water heater before it is filled with water. Even brief operation of the electric element without water in the tank will bum-out the electric heating element.

To energize the electric heating element, turn the switch to on. The switch is located behind the water heater door in the tower left corner of the control housing. The water temperature will be regulated by the thermostat. (See section entitled "THERMOSTAT AND MANUAL RESET" formodelsSW6PE SW6PER, SW6DE, SW6DEM, SW1OPE, SWIOPER, SW100E, SW1ODEM).

TO TURN OFF WATER HEATER

1. Turn switch to "OFF" position.
2. Turn off electrical power to the appliance.
3. Turn oft gas supply.



THERMOSTAT AND MANUAL RESET

MODELS SW6DE and SW6DEM (See Figure 14)

The model water heaters listed above are equipped with a high temperature limit as a cut device. Temperature above 180°F will cause manual reset button to trip shutting down the electric element. To activate element, the water temperature must be below 110°F, push reset button to re-activate the electric element.

WINTERIZING

If your water heater plumbing system equipped with a bypass kit use it to close off the water heater, drain the water heater completely and leave the water heater closed off(out of the system)in the bypass position are introducing antifreeze into the plumbing system. Antifreeze can be very corrosive to the anode rod creating premature failure and heavy sediment in the tank. If the plumbing system is not equipped with a bypass kit and you intend to winterize by adding antifreeze to the system remove the anode rod (storing it for the winter) and replace it with a 3/4 drain plug.

DRAINING AND STORAGE INSTRUCTIONS

If RV is to be stored during winter months, the water heater must be drained to prevent damage from freezing.

1. Turn off electrical power to water heater either at the switch from the electrical element or at breaker.
2. Shut off gas supply to water heater.
3. Turn off pressure pump on water system.
4. Open both hot and cold water faucets.
5. Remove anode rod from tank.
6. Follow RV manufacturer's instructions for draining entire water system.

NOTE: Be certain to refill water heater with water and remove all air from tank and lines before re-lighting or before turning on electrical power.

MAINTENANCE

WARNING! If the user of this appliance fails to maintain it in the condition in which it was shipped from the factory or if this appliance is not used solely for its intended purpose or if appliance is not maintained in accordance with the instructions in this manual, then the risk of a fire and/or the production of carbon monoxide exists which can cause personal injury, property damage or loss of life

WARNING: For your safety, all repairs should be performed by your dealer or a qualified service person.

A. Main Burner: Do not allow the burner to burn with a yellow flame, because sooting will occur. (See Safety Warnings). If the burner flame is yellow and has an erratic pattern, shut unit down and contact a qualified service agency. Do not continue operating unit with improper burner flame. (See Figure 11 for correct and incorrect burner flame appearance)

B. Periodically inspect the unit for soot. If soot is present anywhere on water heater immediately shut unit down and contact your dealer or a qualified service person. Soot is a sign of incomplete combustion and must be corrected before operating water heater. Areas to check would include:

1. Check for an obstruction in burner or the flue box.
2. Check the screen in the door to see that no foreign material has accumulated to prevent flow of combustion and ventilating air.
3. Check to be sure there is no flame present at burner orifice or burner whenever main gas valve is closed. This can be checked by turning the OFF/ON switch to the OFF" position.

C. Frequent checks should be made of the grommet on the gas inlet to assure tight seal. (See Making Gas Connections).

D. Periodically check wiring and wire connection to be sure wiring is not damaged/frayed and that all terminals and connections are tight and in compliance with codes (See Making Wire Connections).

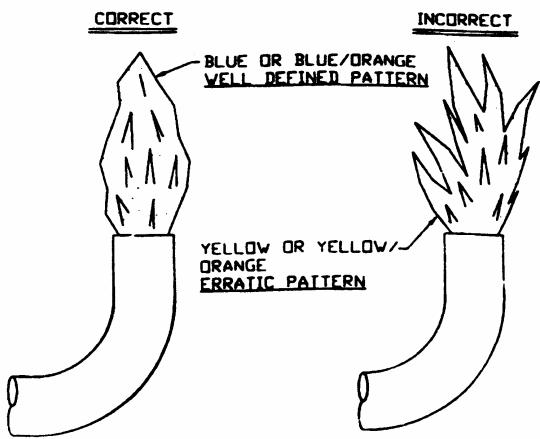


Figure 11

FOR YOUR SAFETY READ BEFORE OPERATING

WARNING! If the user of this appliance fails to maintain it in the condition in which it was shipped from the factory or if the appliance is not used solely for its intended purpose or if appliance is not maintained in accordance with the instructions in this manual, then the risk of a fire and/or the production of carbon monoxide exists which can cause personal injury, property damage or loss of life.

SAFETY WARNINGS

WARNING! Hydrogen gas may result if you have not used this heater for two weeks or more.

HYDROGEN GAS IS EXTREMELY

FLAMMABLE. To reduce the risk of injury under these conditions, open the hot water faucet for several minutes at the kitchen sink before you use any electrical appliance connected to the hot water system. If hydrogen is present, you probably will hear an unusual sound such as air escaping through the pipe as the water begins to flow

Hydrogen gas may be present even after water has been drained from the tank. Open faucet at sink and allow system to vent for several minutes (5-10 minutes)

Do not smoke or have any open flame near the open faucet. Do not attempt to light pilot or main burner. On DSI models, be sure the switch is "OFF".

Should overheating occur, or the gas supply fail to shut off, shut off the manual gas valve to the appliance before shutting off the electrical supply. Do not use this appliance if any port has been submerged 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 that has been submerged under water.

Do not alter the operation of your water heater nor change the design/construction of your water heater. Accessories are being marketed for RV products which we do not recommend. For your safety, only factory authorized parts are to be used on your water heater

Periodically inspect the vent for obstructions or presence of soot. Soot is formed whenever combustion is incomplete. This is your visual warning that the water heater is operating in an unsafe manner. If soot is present, immediately shut the water heater down and contact your dealer or a qualified service person.

When considering add-on rooms, porch or patio, attention must be given to the venting of your water heater. For your safety, do not terminate the vent on your water heater inside add-on rooms, screen porch or onto patios. Doing so will result in

products of combustion being vented into the rooms or occupied areas.

Never operate the heater if you smell gas. Do not assume that the smell of gas in your RV is normal. Any time you detect the odor of gas, it is to be considered life threatening and corrected immediately. Extinguish any open flames including cigarettes and evacuate all persons from the vehicle. Shut off gas supply at LP gas bottle. (See Safety notice on front cover of this manual.)

WARNING! Make sure water heater is filled with water before power is turned on. Even momentary operation of heater without water in it will burn out the element.

NOTE: Always open both the Cold and hot water faucets when filling vehicle water tank to allow air pockets to be forced out of the water. When water flows from the heater faucets, close both faucets.

WARNING! Do not store or use combustible materials or liquids near or adjacent to this heater. The appliance shall not be installed in any location where flammable liquids or vapors are likely to be present.

Be sure the power is "OFF" to the water heater ignition system during [type of refueling and while vehicle is in motion or being towed

The thermostat on your water heater is not adjustable. It is a temperature sensing limit designed to maintain a water temperature of 130F (54°C). Water temperatures over 130 (54CC) can cause severe burns instantly or death from scalds; therefore, be careful when using hot water. Children, disabled and elderly are at highest risk of being scalded. Always feel water before bathing or showering

anode protection will decrease tank life and will void your warranty on the tank. NOTE: Tank is drained by removing anode rod (See Drain and Storage" instructions). To extend anode life, drain water from tank whenever RV is not being used. Avoid any extended time of non use with water in tank. Also refer to section on winterizing.

WARNING! Do not replace the anode rod with any non-Suburban accessory part, such as an "add-on" electric heating element. Items such as these are not approved to be installed in Suburban products. It could create an unsafe condition and will also void all warranties

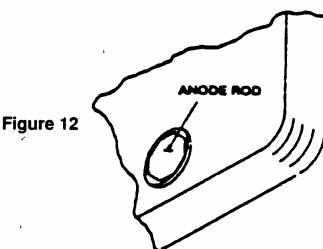
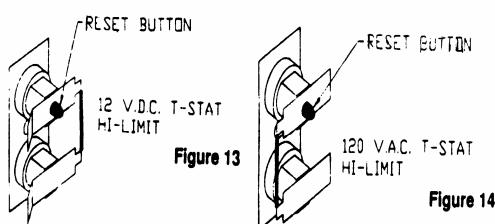


Figure 12

PRESSURE RELIEF VALVE

The temperature and pressure relief valve is designed to open if the temperature of the water within the heater reaches 210°F, or if the water pressure in the heater reaches 150 pounds. Recreational vehicle water systems are closed systems and during the water heating cycle the pressure build-up in the water system will reach 150 pounds. When this pressure is reached, the pressure relief valve will open and water will drip from the valve. This dripping will continue until the pressure is reduced to below 150 pounds, and the valve closes. This condition is normal and does not indicate a defective relief valve.

WARNING! Do not place a valve between the relief valve and the tank. Do not plug the relief valve under any circumstances



ANODE PROTECTION

The tank in this water heater is protected by a magnesium or aluminum anode to prolong the life of the tank. Under normal use, the anode rod will deteriorate and because of this, we recommend it be replaced yearly. NOTE: Water with high levels of iron and/or sulfate will increase the rate of deterioration; therefore, more frequent replacement may be required. Operating the water heater without proper

WATER WEEPING OR DRIPPING FROM PRESSURE RELIEF VALVE

You may experience water weeping or dripping from your water heater's Pressure and Temperature (P & T) Relief Valve when your water heater is operating. Water weeping or dripping from the P & T Valve does not always mean the P & T Valve is defective. As water is heated, it expands. The water system in a recreational vehicle is a closed system and does not allow for the expansion of heated water. When the pressure of the water system exceeds the relieving point of the P & T Valve, the valve will relieve the excess pressure. Suburban recommends that a check valve not be installed

directly at the inlet to the water heater tank. This will increase weeping of the pressure relief valve.

WARNING! Do not remove or plug the relief valve.

One way to reduce the frequency of this occurrence is to maintain an air pocket at the top of the water heater tank. This air pocket will form in the tank by design. However, it will be reduced over time by the everyday use of your water heater.

To replenish this air pocket:

- 1 . Turn off water heater.
2. Turn off cold water supply line.
3. Open a faucet in the RV.
4. Pull out on the handle of the Pressure Relief (P & T) Valve and allow water to flow from the valve until it stops.
5. Release handle on P & T Valve - it should snap closed.

6. Close faucet and turn on cold water supply; as the tank fills, the air pocket will develop.

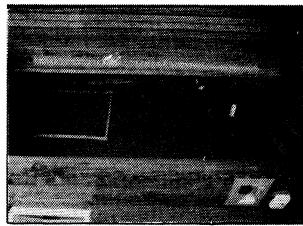
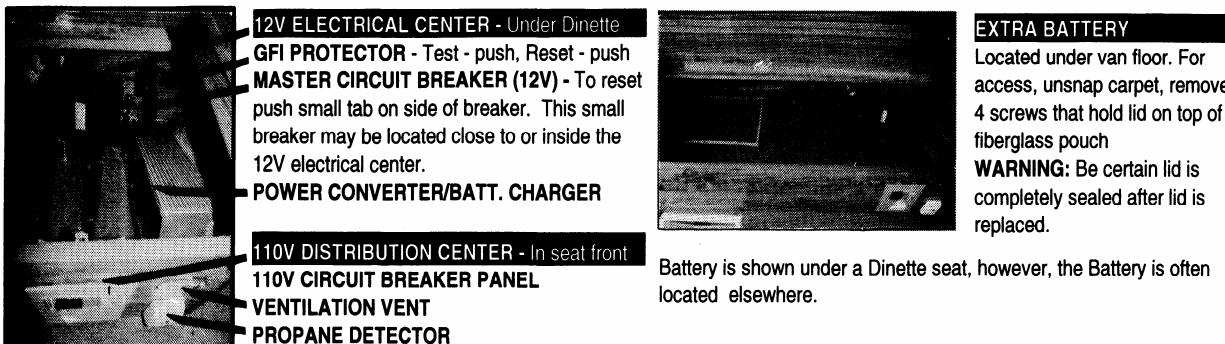
Repeat this procedure as often as needed to reduce the frequency of the weeping of the P & T Valve. If the weeping persists after following this procedure, you may elect to install an expansion or accumulator tank in the cold water line between the tank and check valve to relieve the pressure caused by thermal expansion. Contact your local dealer for assistance.

THERMOSTAT AND MANUAL RESET

MODELS: SW6D, SW6DE, SW6DM and SW6DEM (See Figure 13)

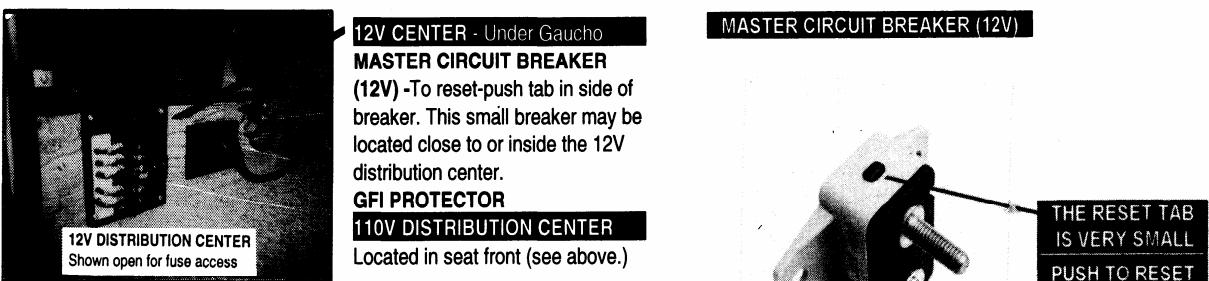
The mode water heaters listed above are equipped with a high temperature limit as a cut-off device. Temperature above 180°F will cause manual reset button to trip shutting down main burner. To activate burner, the water temperature must be below 110°F, push reset button to re-activate burner.

12/110V DISTRIBUTION CENTERS

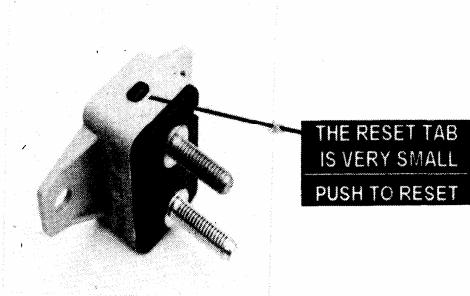


EXTRA BATTERY
Located under van floor. For access, unsnap carpet, remove 4 screws that hold lid on top of fiberglass pouch
WARNING: Be certain lid is completely sealed after lid is replaced.

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

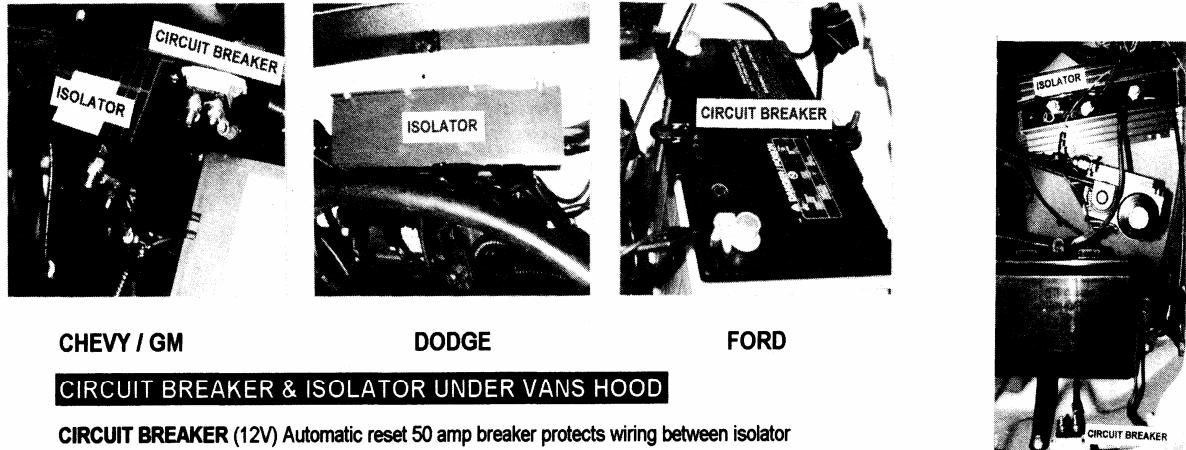


MASTER CIRCUIT BREAKER (12V)



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

17.1 ISOLATOR & CIRCUIT BREAKER



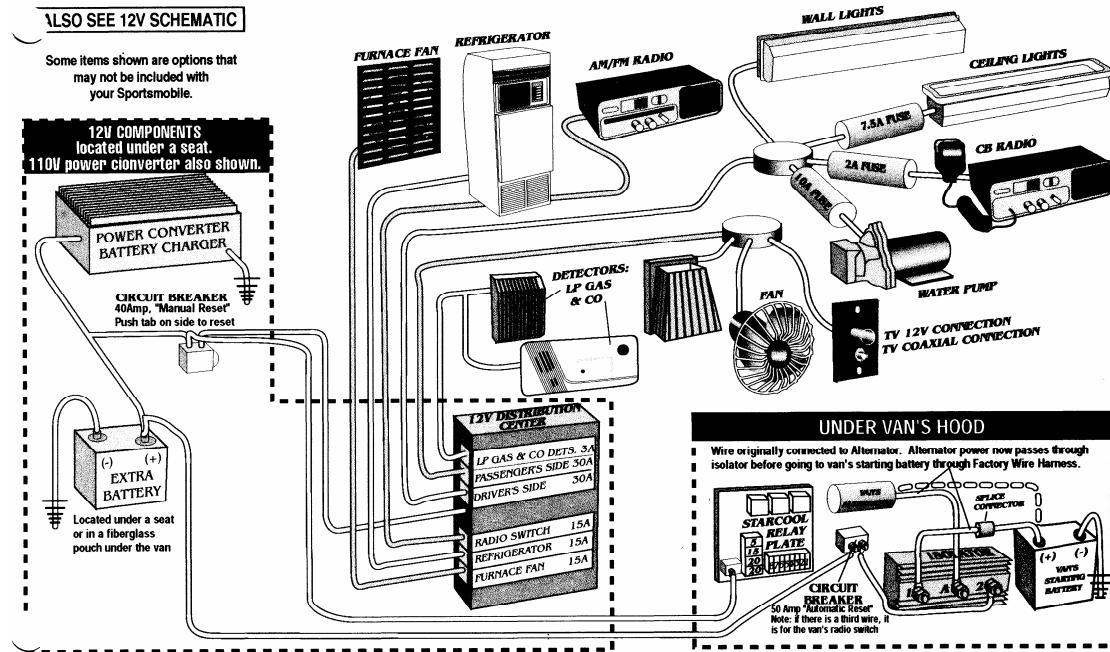
CIRCUIT BREAKER (12V) Automatic reset 50 amp breaker protects wiring between isolator and extra battery.

Should the breaker go bad, the alternator will not charge the extra battery when the vans engine is running. A certified technician can check it with a voltage tester. It can be replaced with any 50 amp automatic circuit breaker or we can send you one of ours, no charge.

ISOLATOR Prevents 12V drain from the vans starting battery. If the isolator goes bad it can cause same problem as circuit breaker, it can be checked by a certified technician. If defective, it can be replaced with any isolator of same amperage or greater. Or contact us for a replacement.

Ford – Swing coolant reservoir out of way by removing 3 screws for access to isolator.

17.2 ELECTRICAL SYSTEM, 12V



17.3 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 are the Propane/Smoke Detector, and C.O. Detector. They draw a total of 9 amps per 24 hours
4. See your Operators Manual for the van's 12V system.

17.4 12V FUSES & CIRCUIT BREAKER LOCATIONS

1. See "12V Distribution Center" drawing above and separate "12V Schematic" page. 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.
3. 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.
4. 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.

17.5 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. See next page.

17.6 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.

18 TYPICAL 121/110V REQUIREMENTS

NOTE: In an effort to simplify basic understanding of your electrical system, we use the phrase, "Amps per Hour". Although this phrase is not technically complete, we feel it helps in understanding how your electrical system works

12 & 110 V	12V AMP/HR	110V AMPS/HR	RUNNING WATTS	REMARKS
(1) Refrig A-3CF	2.5		30	
" B-4CF(2-way)	3.1	.83	37	
" C-2CF(3-way)	8	9	96/1080	
" C-4CF "	11	13	132/1560	
TV- Typical Model 9"	(6) 6	.6	70	(6) TV can use .2 amp per hour even when switched "OFF." Unplug TV to eliminate Drain
110V				
(1) A/C STARCOOL (ON HIGH)	(8) 24	(7) 16.2	1944	(7) 110volt amps are used only when Van engine is not running.
(WITH GENERATOR OPTION)				(8) For 12V Blower Fan and Condenser Fan
MICROWAVE		8	1000	
(1) WATER HEATER,110 V		12.5	1500	
HAIR DRYER		3-4	350-400	
ELECTRIC BLANKET		.5-1.5	50-200	
ELECTRIC DRILL		2-6	250-750	
ELECTRIC STOVE (per element)		3-8	350-1000	
ELECTRIC FRYING PAN		8-7	1000-1350	
COMPUTER		.5	30-50	
POWER CONVERTER		0-4	0-500	Depending on 12 volt load
12V				
(1) WATER PUMP	4		48	
LIGHT SWIVEL -(one bulb)	1.5		18	
FLOURESCENT- (two bulb)	1.9		16	
FAN	1.7		21	
ATTIC FAN – On Low	1.9		23	
Medium	2.3		28	
High	3		36	
RADIO, DASH	3		36	
LP DETECTOR	.2		2.4	
CO DETECTOR	.2		2.4	

(1)These items will cycle on and off as power is required

Generator, ONAN 2.8K-Provides 2800 watts of power. The Starcool A/C uses 1584 watts. This will leave 1216 watts for other 110V items. A microwave requires 1000 watts, for 600 watts cooking power. POWER CONVERTER, 55A- When you have 110V hookup the Converter will supply up to 55 amps of 12V power

18.1 SPORTSMOBILE LIGHT BULB SIZES

FLUORESCENT	-12V Small — 12" bulbs (2), 8W. Type F8TF/CW - I 2V Large — I 7 ¾" bulbs (2), 1 5W. Type Fl 5T8ICW
SWIVEL LIGHTS	- 12V. Type 1141
	• <i>LED Replacement Bayonet B15 Item #Matrix II 32 Led Type 1156</i>
HI/LO LIGHTS	- 12V. Type 211-2(3) each light
	• <i>LED Replacement Festoon High Flux Item #6 led 44mm</i>
CAB CEILING LIGHTS	- 12V. Type 168(2)
HALOGEN LIGHTS	-12V. Type OSR64415. 83 AMP, 10 WATT

18.2 FUSES

These are the 12V fuses used in your Sportsmobile conversion. ATC sizes 3, 5, 7.5, 10, 15, 20 and 30. (We suggest carrying extra fuses)

19 12V SYSTEM TROUBLE SHOOTING

GENERAL

If you should experience a problem with your extra battery or 12V 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 Sportsmobile plants.

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

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

If above is okay — proceed to "C".

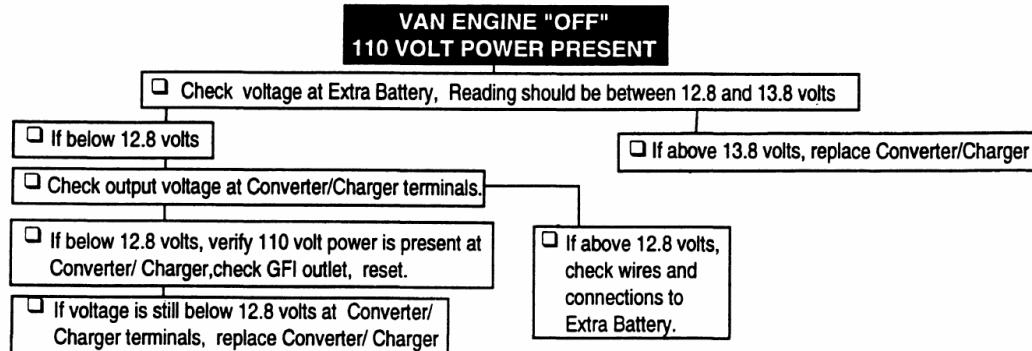
B. PROBLEM: EXTRA BATTERY DOES NOT SUPPLY POWER LONG ENOUGH - WHEN "NOT" CONNECTED TO A 110V HOOK-UP.

- Check water level in battery. See the extra battery sheet for access and other information.

If above is okay — proceed to "D".

C. POWER CONVERTER/CHARGER OKAY?

- With Sportsmobile connected to 110V hook-up and van engine "not" running, battery analyzer should have yellow or yellow and green light on — 13.2 volts to 14.5 volts.
- See illustration below, also see 12V schematic sheet.



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

— **LOAD TEST** — A qualified service center or Sportsmobile can perform this test to determine if the battery has a bad cell and needs to be replaced.

— **VOLTAGE METER** — INSERT THE PLUG in the cigarette lighter or 12V socket properly. The LED indicators tell you the extra battery(s) condition as follows:

SIGN	LED LAMP	DIGITAL READOUT		INDICATION	CONDITION
		12V			
NO SIGN	LOW MED HIGH (Red) (Yellow) (Green)	Below 11.8V		POOR	Examine storage battery, charging and electric system.
=	LOW MED HIGH (Red) (Yellow) (Green)	Below 12.5V		NORMAL	Normal
☰	LOW MED HIGH (Red) (Yellow) (Green)	Below 16.0V		FULL	Charging of battery is full

— LED ON ■ LED OFF



E. CHARGING SYSTEM (ALTERNATOR & REGULATOR) OKAY? You can check it with the voltage meter.

— Plug meter into cigarette lighter on dash for this test, see instructions on meter.

F. CIRCUIT BREAKER, ISOLATOR, VANS ALTERNATORIREGULATOR (12V CHARGING SYSTEM) OKAY?

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

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.

- | | | |
|---|--|---|
| <input type="checkbox"/> 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. | <input type="checkbox"/> If both Batteries are above 15.2 volts, have a qualified technician check van's Alternator/Regulator. | <input type="checkbox"/> If Extra Battery voltage is more than 2 volts higher than van Starting Battery. |
| <input type="checkbox"/> Check 50 amp Circuit Breaker, if both terminals do not have the same voltage, replace Circuit Breaker. | | <input type="checkbox"/> Check factory wires and connections
<input type="checkbox"/> Check for corrosion at van's Starting Battery. |
| <input type="checkbox"/> 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. | | <input type="checkbox"/> Replace Isolator. |

20

EXTRA BATTERY, LIFELINE AGM

20.1 GENERAL INFO

1. The Extra Battery will supply 12V power to all 12V accessories, while driving or parked.
2. The standard size number 27 AGM 100 amp Battery supplied is a deep cycle, heavy duty, battery. It is specifically designed for continuous use in deep cycle applications and it can be recharged hundreds of times. The much larger 40 size battery is equal to two number 27 batteries. Due to its size the installation location is much more limited. It's sealed there is no maintenance.
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 or plug into a 110V 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. Note — Do not "fast charge" battery with an "outside" battery charger while electric Refrigerator is turned on.

20.2 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 100 amp Lifeline 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.

20.3 REPLACEMENT

1. Eventually your battery will die. A Sportsmobile plant can install a new one for you or ship one UPS.

2. Or call Lifeline for dealer locations 800 • 527 • 3224. / 4D AGM

20.4 BATTERY ACCESS

1. The much larger 4D AGM Lifeline battery is usually located under the van on the passenger side. The battery is heavy, it weighs 130 lbs and the support tray is 15 lbs. If it needs to be replaced we recommend you have Sportsmobile or a service center do it.
2. Remove wire clamp under van to rear of battery fastened under the floor of the van.
3. With a floor jack under battery remove the four 5I8 bolts at each of the side, bottom corners. Lower battery then remove from jack.
4. Pull battery out from under van (wire is long enough), remove (black) ground wire first. Then remove (red) hot wire. Inspect or remove and replace battery. Reinstall (red) hot wire first then (black) ground wire. Lift up on jack and raise into place. Install the four 518" bolts then the wire clamp.

20.5 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 fewer amps and also bum 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.
4. Warning - replace the fuse as soon as you re-enter the Sportsmobile. It is not recommended that a separate switch be wired to the detectors.
5. TVNCR - 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 ‘•W. Unplug TV to eliminate this extra power drain or turn TV rocker switch “off”.
6. Water Pump - Draws 4 amps, only when running. When connected to city water turn pump off.
7. 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 not using the 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.

20.6 WHY WE USE LIFELINE BATTERIES

1. They are more expensive; however we feel its well worth it to the customer...
2. According to the manufacturer the latest and most advanced battery technology is Advanced AGM, which was developed to provide increased efficiency and durability over all existing battery types. This is the same type battery used in many military aircraft, including the Stealth Bomber.
3. In advanced AGM batteries the acid is absorbed into a very fine glass mat that is never free to slosh around. The plates are kept only “moist” with electrolyte so gas recombination is more efficient (99% AGM). Since they are sealed you will never have to check them.
4. Since the AGM material has an extremely low electrical resistance, the battery delivers much higher power and efficiency.
5. Lifeline can be charged much faster, about 20%, if needed and also deliver higher power when required. Owners using high output alternators, operating inverter banks, or relying on solar panels can benefit significantly when using Lifeline Advanced AGM batteries with their equipment “Lifelines” are more efficient!
6. Advanced AGM batteries offer exceptional life cycles. All batteries eventually die. When cycled at between 25 to 40 percent depth of discharge (recommended deep cycle use) Lifeline Advanced AGM batteries will normally easily outlast lead acid and gelled acid CE (electrolyte) designs.
7. Safety according to the manufacturer of Advanced AGM batteries are the safest available. They are the only marine batteries to pass the rigid Military Specifications for non-gassing even during severe overcharging.

20.7 LIFELINE BATTERY QUESTIONS?

Call 1.800•527•3224 or www.lifelinebatteries.com

20.8 HOW LONG TO CHARGE?

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

20.9 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 few 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.

20.10 WHILE PARKED AND CONNECTED TO "110V POWER"

1. Again, there are many variables.
2. The Power Converter/Battery Charger has a maximum of 55 amps per hour.
3. All of the Convener/Charger output power could be used — if you have the 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. The Starcool compressor will be running on 110V. The Starcool condenser and blower fans will be on I 2V.

20.11 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.

20.12 EXTRA BATTERY CHARGE WIZARD

This very small Progressive Dynamics I 2V microcomputer with over 1000 transistors is plugged into your Progressive Dynamics Power Converter/Battery Charger, see page 30. It's standard on Sportsmobile's manufactured 12/02.

1. The Wizard is fully automatic with a manual override.
2. It will charge your extra battery faster.
3. Extends your battery life by cycling every 21 hours to reduce sulfation on your battery's lead plates.
4. See Section 25.

21 REFRIGERATOR, ELECTRIC

21.1 GENERAL

1. Unlike gas refrigerators, an electric 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. Electric refrigerators also get cold faster and no outside venting is required.

2. For complete operation and warranty information, please see Norcold's literature.

21.2 OPERATION

1. Turn 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. 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. The 3 CF Norcold now runs on 12V only. When you plug into a 110V outlet or turn your generator on the power converter will convert some of the 110V power to 12V. This 12V power will then run your refrigerator, 12V lights, etc.
4. The 4 CF Norcold is 12V and 11 DV. When you plug into a 11 DV outlet or turn your generator on your refrigerator will automatically switch to 110V. When you unplug, it will automatically switch back to 12V power from your extra battery.
5. 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.
6. NOTE — 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.

22 ATTIC FAN

22.1 OPERATION INSTRUCTIONS

1. Open dome approximately 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 for airflow.
3. Source of airflow is determined by the windows opened. For best results open 1 window the greatest distance from your fan.
4. NOTE - Never place vent cover over fan. Greatly restricted airflow and increased sound levels will occur.
5. WARNING - Never operate the roof vent when using optional Generator.

22.2 WHEN EQUIPPED WITH "REVERSE" SWITCH

1. Turn fan motor off by setting 3-speed switch to "0". Wait for fan blade to stop.
2. Select "IN" position, brings air from the roof area into your coach (pressurizes inside).
3. Or select "OUT" position, brings air in through any or all openings in coach and exhausts through the roof.
4. Turn fan motor to "1, 2 or 3".

22.3 WHEN EQUIPPED WITH "THERMOSTAT" & RAIN SENSOR

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. If it rains the dome will close, when it stops raining it will re-open.

23 DETECTORS

23.1 PROPANE DETECTOR

MODEL GS/3 Manufactured by Electro Systems. Email info@es-web.com

23.1.1 OPERATION

1. When you connect power to your new detector it goes through a start-up cycle. The green LED (marked "Power") comes on. The red LED (marked "Alarm") and horn will pulse for approximately 5 seconds until the sensor is warmed up.
2. If no fumes are detected, the red LED and horn stop and the green LED remains on, indicating the detector is active.
3. The detector can be tested by injecting gas (no flame) from a butane lighter for 5 seconds into the lower grill. This test should be done monthly to ensure proper operation of the detector.

23.1.2 IF FUMES ARE PRESENT

1. If fumes are present at start-up, the horn and red LED will continue to pulse — from 60 pulses/minute for concentrations lower than 25% of the lower explosive level, to 80 pulses/minute for higher concentrations.
2. If fumes are detected at any time after start-up the horn and red LED will start to pulse. If this occurs, immediately shut off the propane supply and ventilate the area.
3. Avoid using any source of ignition, including electric switches, electric motors, pilot lights or other open flames. When the fumes have dissipated, the horn will stop and the red LED will turn off, indicating a safe atmosphere.
4. The leak should be corrected before resuming operation of the propane system.
5. A continuous tone indicates a short in the electronics and a single pulse every 10 seconds indicates a faulty sensor. If either of these signals occur, return the detector to your dealer for repair or warranty replacement.

23.1.3 FALSE ALARM

1. The presence of other organic vapors, such as paint fumes, solvents or hair spray can trigger a false alarm.
2. Ventilate the area and this should stop the alarm.

23.1.4 MAINTENANCE

1. Your detector needs unrestricted air flow through the grill for reliable operation
2. Keep it free of any obstructions and vacuum monthly

WARNING - The sensor may become contaminated if it gets wet. Keep it dry

23.2 SMOKE DETECTOR

1. Please see the manufacturer's literature.

23.3 CARBON MONOXIDE DETECTOR

1. Please see the manufacturer's literature

23.4 EXTRA BATTERY DISCHARGE

1. The carbon monoxide and propane detectors pull 4 amps per hour or 9.6 amps in 24 hours.
2. 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 so your extra battery will not be totally discharged. Please see the electrical system 12V sheet for fuse location.

WARNING - ALWAYS REPLACE THE ABOVE 3 AMP FUSE AS SOON AS YOU ENTER YOUR SPORTSMOBILE.

24 RADIO POWER SELECTOR SWITCH

1. The purpose of the selector switch is to allow you to have the radio operating while parked and the ignition is "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 "Van" battery to prevent excessive discharge of your van's starting battery.

24.1 RADIO SWITCH OPERATION

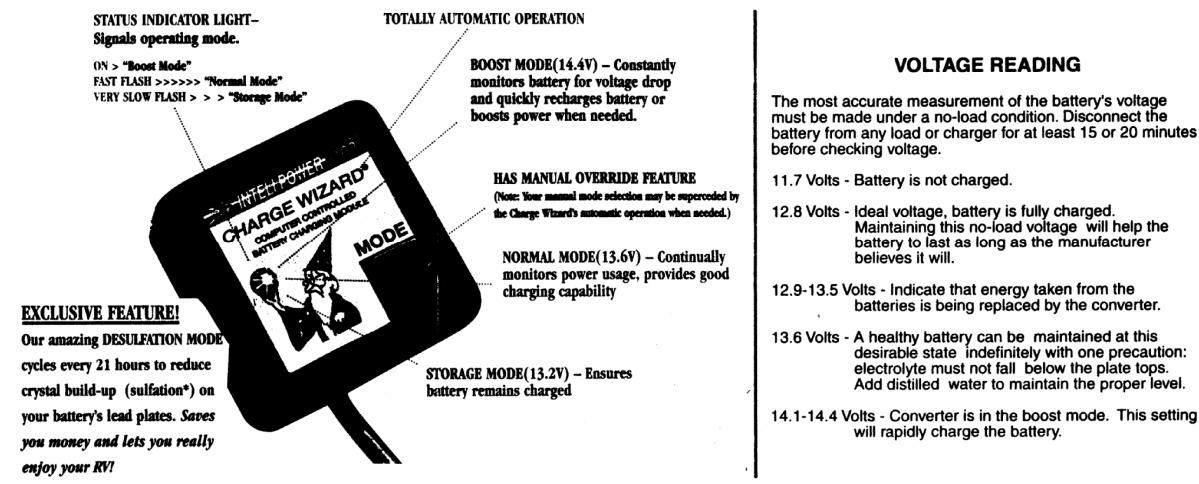
1. Selector switch allows the radio to receive power from either the van's starting battery or the extra battery.

24.2 SGW - RADIO DOES NOT OPERATE

1. If radio does not operate, check fuses at the factory fuse block and I 2V distribution center. Check for I 2V power to fuse.
2. If fuse is blown, replace with same size fuse.
3. If new fuse blows, have system checked by a qualified technician.
4. NOTE — Switch should be to "Van" battery when not using radio while parked. Van's starting battery will discharge if -- ---%--- switch is on "Extra" battery too long.

25 EXTRA BATTERY CHARGE WIZARD

THE CHARGE WIZARD... Turns your power converter/battery charger into a complete automatic, intelligent 12V charging system



25.1 Operation

Automatic

- The Charge Wizard automatically selects the optimum battery charging mode— depending on battery charge.

Manual

- Press and hold MODE switch, Charge Wizard cycles between modes
- Boost Mode - indicator light will stay ON
- Normal Mode - indicator light will flash
- Storage Mode - indicator light will flash very slow, once in 8 seconds
- Charge Wizard stays in the selected mode when switch is released.

The Charge Wizard will automatically override as necessary to maintain optimum battery performance.

Charge Wizard Status

Indicator light status mode

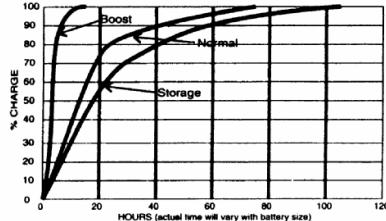
On	Boost
Fast Flash	Normal – Battery full charge (above 12.8 V)
Slow Flash	Battery – more than 50% charge (11.8 V - 12.8 V)
Very Slow Flash	Storage – (13.2 V)
Off	Battery – less than 50% charge (less than 11.7 V)

All Voltages are approximate.

Indicator Light Flash Rates: Fast flash ON/OFF • Slow flash every 1 sec. • Very slow flash every 8 sec. Indicator light will not show battery condition when the Charge Wizard is in the BOOST or STORAGE MODE.

Charge Curves

Typical battery charging curves for the 55 amp INTELI-POWER 9100 Converter, using a fully discharged 125 Amp-hour battery. These curves show the percent of charge versus time with the converter in each of its three operating modes.



The Charge Wizard is designed to be used with Progressive Dynamics Inc. INTELI-POWER 9100 series converters. The Charge Wizard controls the converter's charging system and automatically activates the optimum battery charging mode. Charging modes can also be activated manually.

Storage Mode

- Nominal no load charge of 13.2 volts is applied to the battery for long periods of storage without damaging the battery.

- (Desulfation Cycle)** Every 21 hours the Charge Wizard will switch to the Boost Mode and apply 14.4 volts as an equalizing and desulfation charge for 15 minutes, to prevent acid stratification and clear the beginning of lead sulfate on the battery plates, and then return to the Storage Mode.

- Charge Wizard will automatically switch to Storage Mode when the battery is charged and no battery activity is detected.
- When battery activity is detected the Charge Wizard switches to Boost Mode applying an equalizing charge of 14.4 volts for one hour then switches to the Normal Mode.
- The Storage Mode can reverse the sulfation process and possibly provide extra life for older batteries.

Normal Mode

- Nominal no load charge of 13.6 volts is applied to the battery during normal use.
- Default mode.
- With the Charge Wizard, the charging system is maintained at the optimum setting for best battery performance.

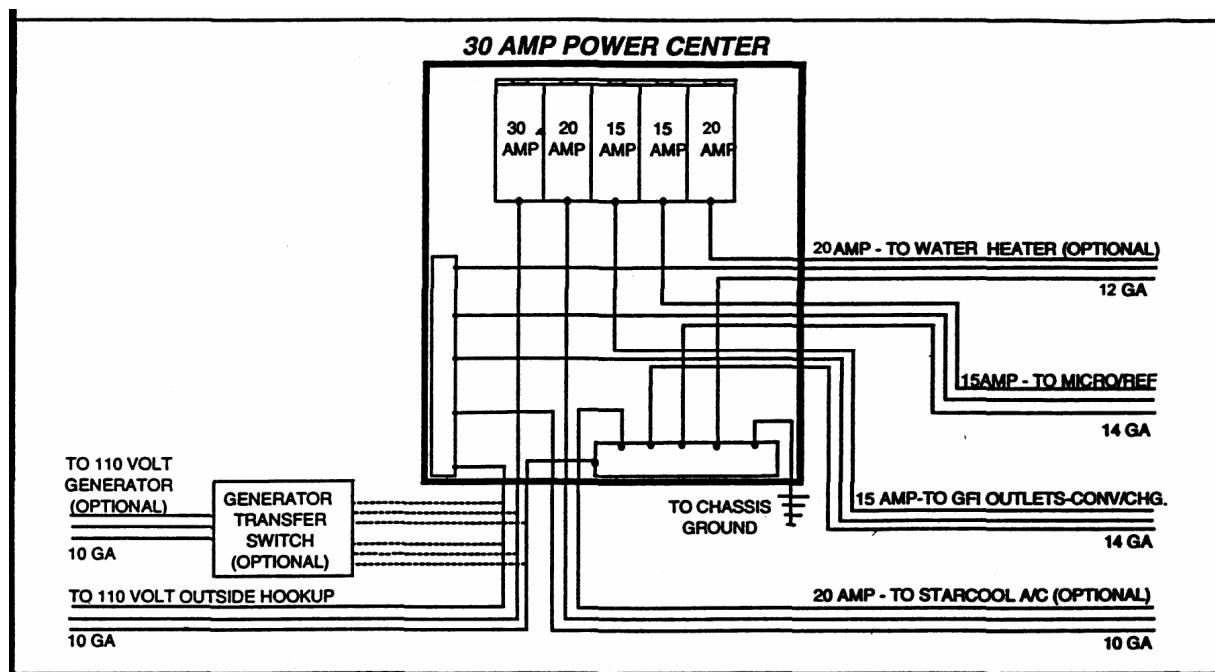
Boost Mode

- Nominal no load charge of 14.4 volts charges the battery very quickly and helps prevent battery sulfation that reduces how well your battery performs.
- Boost Mode will only be enabled up to four hours, to prevent over charging the battery.
- Maintaining this level for long periods can lead to excessive water loss and overheating of your battery.
- Boost Mode is activated if the battery becomes discharged to a low level.
- Boost Mode is also activated when the system exits the Storage Mode.

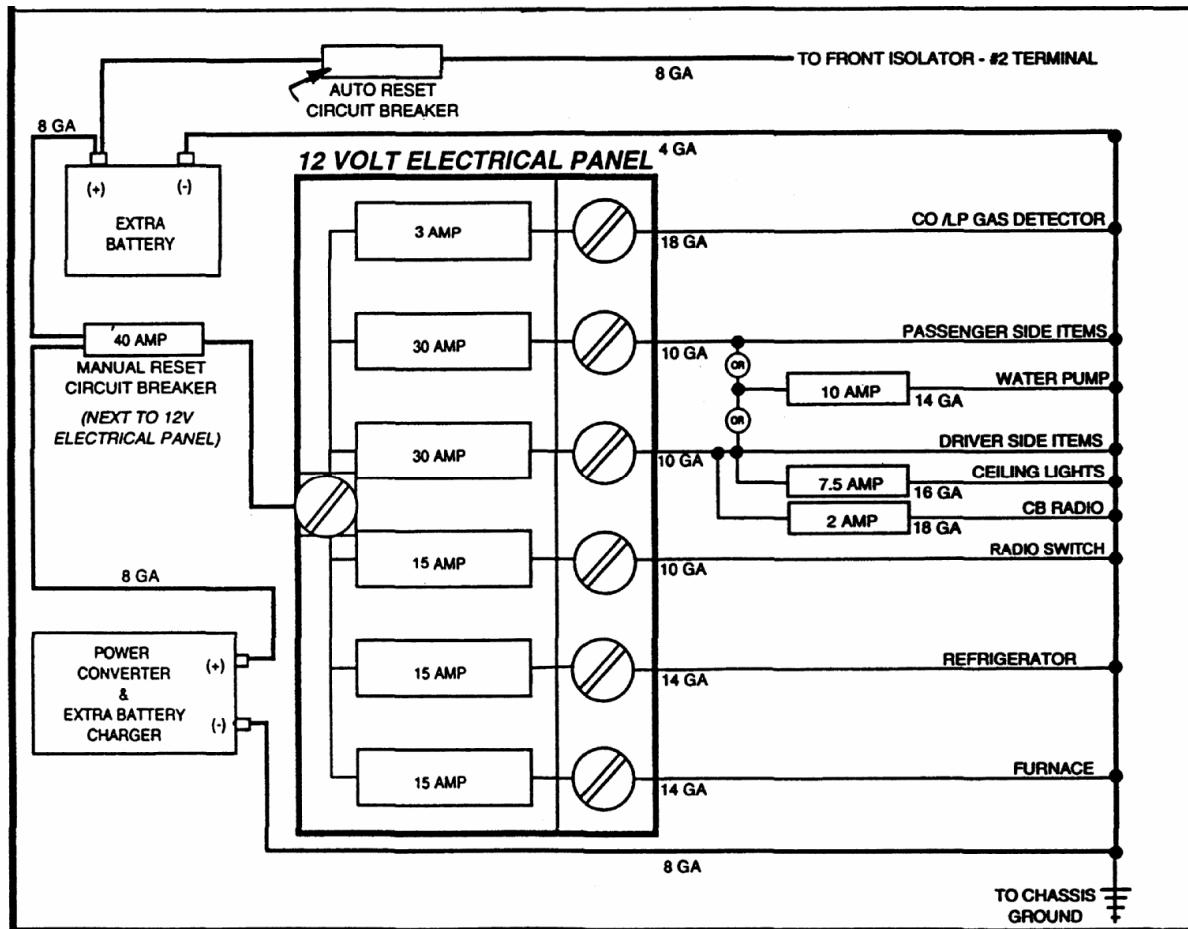
TROUBLESHOOTING

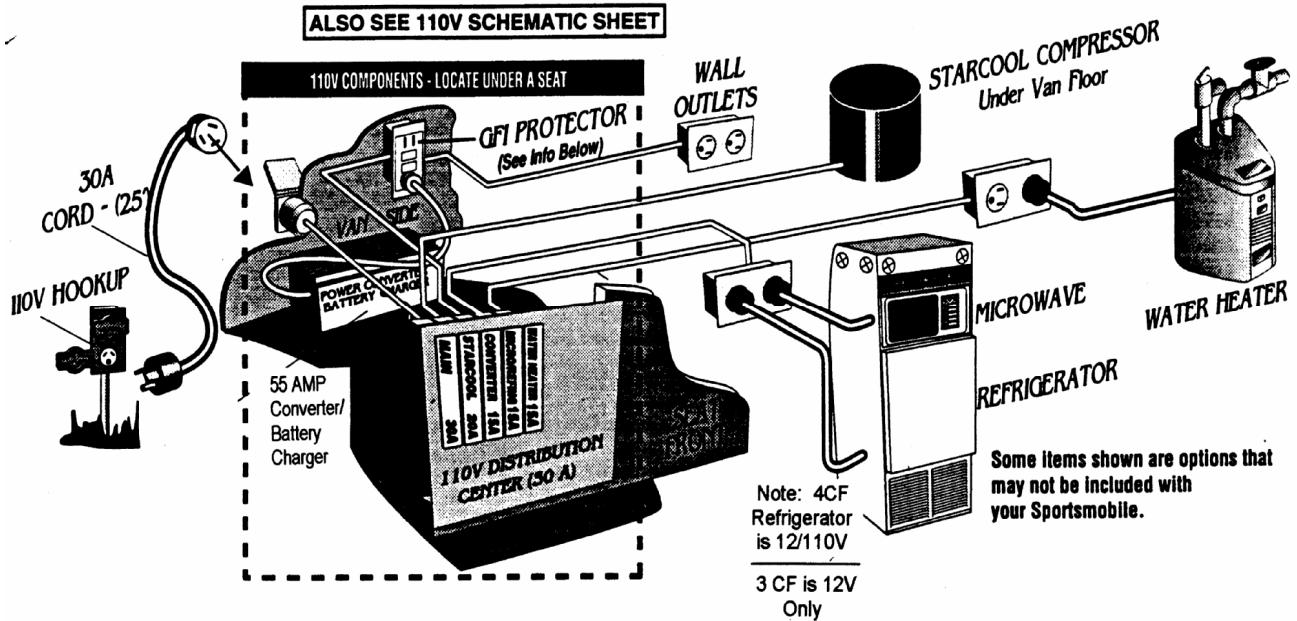
PROBLEM	POSSIBLE CAUSES	ACTION
Indicator light is not on	Battery is less than 50% charged	Reduce load requirements to allow the battery to recharge
No charge to battery	No AC power to converter	Check AC wiring
	Excessive loading of system	Reduce load requirements
	External Fuse(s) blown	Check battery for reverse polarity Replace fuse(s) with same type and rating
Low Output	Input voltage is less than 105 VAC or above 150 VAC	Correct input supply voltage
	Bad battery cell(s)	Replace battery
	Excessive load for converter	Reduce load requirements or install larger converter

26.1 110V SCHEMATIC



26.2 12V SCHEMATIC





27.1 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 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, and then back on.
7. NOT SURE IF YOU HAVE 110V POWER IN THE VAN? Use a nightlight in a 110V outlet. If it doesn't light up check the 30A breaker switch and your GFI protector, see below.

27.2 INVERTER

If you have this option, you must turn it "on" to supply power to the Extra Battery.

27.3 GFI PROTECTOR

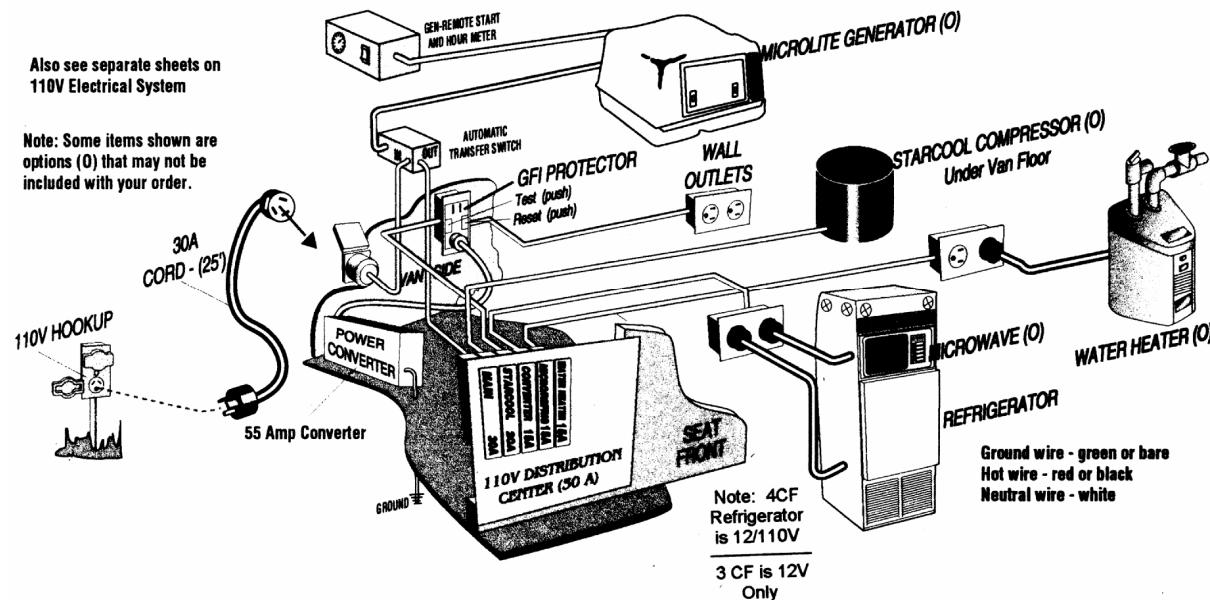
1. To protect you from line to ground electric hazards, a GFI Interrupting Receptacle has been installed. It protects wall outlets that are exposed. The concealed wall outlets for such items as the Refrigerator are not GFI protected.
2. If the power at one of these 110V wall outlets fails, without affecting 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.

27.4 APPLIANCES

- ALL 110V appliances are protected by circuit breakers.
- To reset a tripped circuit breaker, flip the breaker off, then on.
- 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.
- If individual circuit breakers trip, reset. If breaker continues to trip, have a qualified electrician check the appliance or breaker

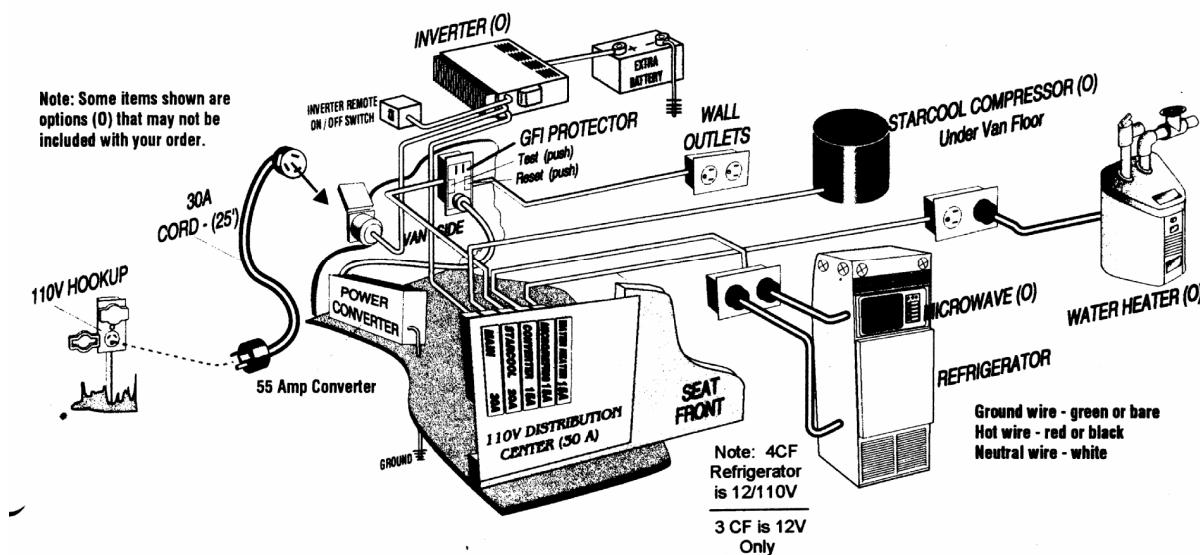
28

GENERATOR - WIRED INTO 110V SYSTEM



29

INVERTER - WIRED INTO 110V SYSTEM



30 INVERTER — 12V TO 110V

30.1 DIFFERENCE BETWEEN

- “CONVERTERS” Convert 110V to 12V when you are connected to a 110V hook-up. 12V power will power your 12V lights, TV, fan, etc. A “converter is standard equipment.
- “INVERTERS” Convert 12V battery power to 110V to power microwave (O), hot water heater (O), computer, hand tools, etc. It will not power the Starcool A/C. (O) Are options.

31 GENERAL - XANTREX OR TRIPPLITE 2000 INVERTER

- When you are connected to a 110V outside hook-up, the converter with the built in battery charger will charge your extra batteries without overcharging and will maintain the charge.
- When an inverter is ordered the Std. Equip. Pkg. power converter battery charger is deleted. Credit is allowed for this change in the price of the inverter

31.1 SGW (SOMETHING GONE WRONG)

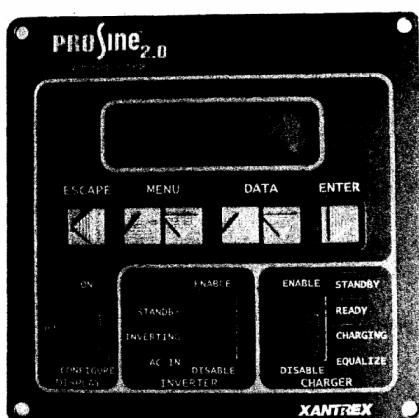
- a. No power.
 - A. The Xantrex or Tripplite Inverter has a low battery cut-off feature, which prevents the Inverter from operating if the 12V extra battery voltage is too low.
 - B. If the Inverter needs to be operated before the extra batteries are recharged, you can run the van engine while operating the Inverter.

31.2 STILL HAVE A PROBLEM?

. Please call Xantrex Customer Service 800-670-2707 or Tripplite 773-869-1234.

31.3 IMPORTANT

- b. . The information on this sheet is “basic” information.
- c. . Before Operating the inverter read the Xantrex or Tripplite Owner’s Manual.



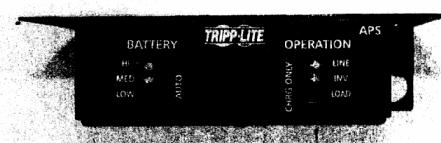
XANTREX DISPLAY PANEL

DISPLAY – Turns digital display on or off.

INVERTER – Enable turns inverter on, Disable turns inverter off.

CHARGER – Enable turns charger on, Disable turns charger off.

ESCAPE/MENU/DATA/ENTER – See Prosine Owner’s Manual to change settings. Sportsmobile sets panel for your conversion. For more technical information please see the Xantrex Manual.



AUTO – Switch here to invert (12V to 110V)

CHARGE ONLY – Switch here to turn inverter off.

NOTE – In either above position the inverter/charger will supply 110V power and charge your extra batteries – when connected to 110V hook-up or running your generator.

For more technical information please see the Tripplite Manual.

32 HOT WATER HEATER, 110V

32.1 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.

32.2 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.

32.3 WINTERIZING

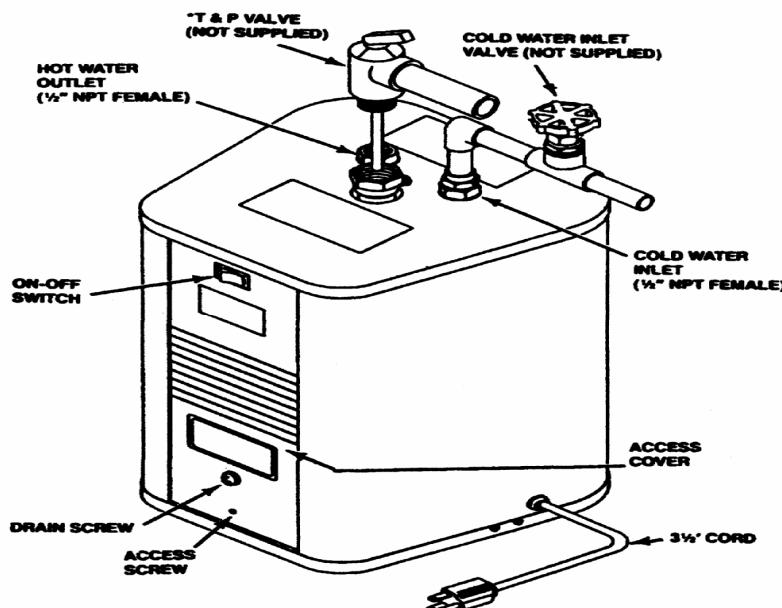
1. You can add potable anti-freeze to water system. However, by-pass water heater with by-pass valves.
2. You can also drain the heater with water pump off and no city water connected, open faucet controls, loosen drain plug on side of water heater, making sure water is draining into drain pan and then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

32.4 MAINTENANCE

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

32.5 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.



33 GENERATOR, ONAN 2.8 KW

SPORTSMOBILE HAS REWRITTEN THE ONAN'S MANUAL FOR SIMPLIFICATION.

33.1 WARNING –

These sheets are to be considered only as supplements to the manufacturers literature replacements. It is important that you read and understand all of the manufacturer's 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 manufacturer's instructions.

33.2 ONAN OPERATOR'S MANUAL- PLEASE SEE FOR COMPLETE INFORMATION

1. 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.
 - C. Before turning on a large load, such as the A/C, microwave or hot water heater, let the generator run 3 to 5 more minutes. Suggestion — leave main 30-amp breaker off, that way you won't be pulling any 110V load
2. You can now start applying a load. See approximate power requirements of appliances, (back side of this sheet).

33.3 FUEL CONSUMPTION - GENERATOR RUNNING TIME

- 1 Dodge and Ford have 35 G gas tanks, Chevy/GM have 31 G gas tanks. The generator will automatically shut down when the gas tank is down to % of a tank, add fuel to resume operation.
2. At no load the Onan 2.8 KW generator uses 0.2 gph; at 4 load it uses 0.3 gph; at full load it uses 0.43 gph.
3. At full load the generator will run 65 hours before shutting down at the 1/4 tank level.
4. The 2.5 I(N propane generator (used with diesel vans) uses 5 gph and will run 1 1 hours. If the Starcool A/C is off it will run 16 hours.

33.4 WARNINGS - ALSO SEE ONAN'S MANUAL

1. Never sleep in vehicle with generator running unless vehicle interior is equipped with an operating carbon monoxide detector. Exhaust gas is hazardous and may cause injury or death. Make sure all exhaust components are operation worthy.
2. Fire can cause severe personal injury or death. Do not operate generator when vehicle is parked in grass or brush.
3. Exhaust gases can cause severe personal injury or death. Never operate the generator set unless the exhaust system is dear 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.
4. Hot oil can cause severe burns if spilled or splashed on skin. Keep hands dear when removing oil drain plug.
- 5 Fuel presents the hazard of fire or explosion that 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 fire extinguisher nearby.
6. Contact with hot engine parts can cause severe burns.

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.
3. Pets — If you are using a generator to run you're NC to keep them cool, keep in mind there could be a failure. We suggest you keep some windows partially open just in case.

WARNING — Never operate an exhaust or attic fan if you have your 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	550-700
Converter	300-500
Electric Blanket	50-200
Electric Broom	200-500
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	600-1000
Space Heater	1000-1500
Television	200-600

33.5 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.

33.6 Control Components

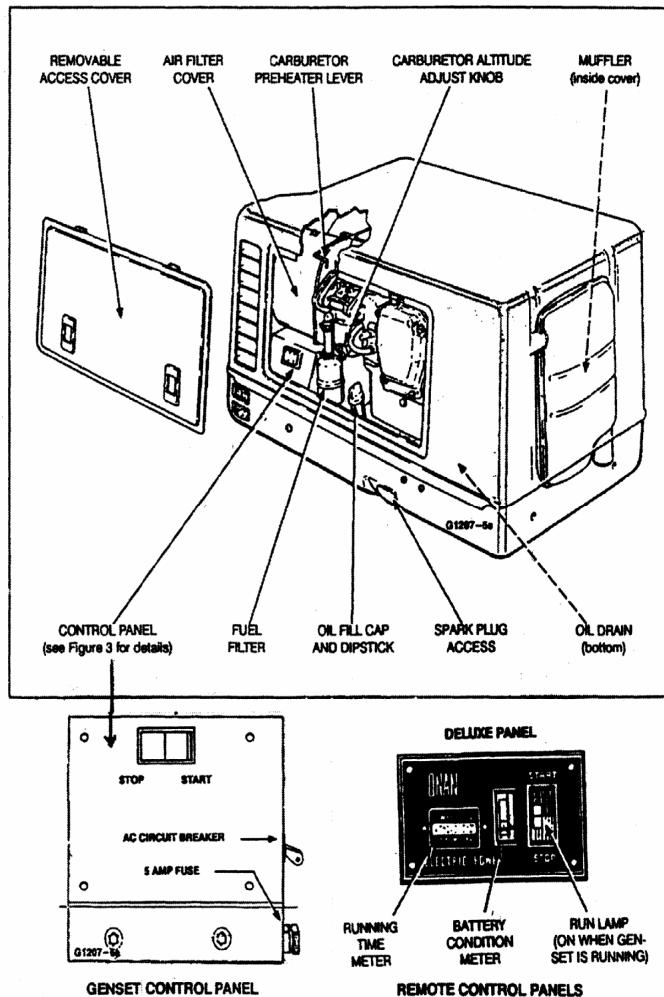
Start Stop Switch: Start and stop unit locally. The unit can also be operated from an optional remote control wired to the control panel.

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.



IMPORTANT — See Onan "Genset Exercise" sheet following this page.

33.7 GENERATOR UNDER VAN INSTALLATION

- 1 Operation — please see owners manual before lowering.
- 2 To lower — to change oil, fuel filter, spark plug or adjust carburetor.
 - A Tools required — floor jack, 9116W wrench.
 - B Verify exhaust hanger bracket will not interfere with lowering generator. Remove bracket if necessary.
 - C With floor jack under generator, touching bottom of generator, loosen 5 9I16 nuts (2 on each side, one in center of back of generator), lower jack, disconnect 110V, 12V and fuel line.
 - D Reverse lowering procedures to raise generator.

34 Onan® RV GENERATOR OPERATING TIPS

34.1 PRE-START CHECKS

The following pre-start checks should be done at the first start of the day and every 8 hours of operation after that.

- Check oil level.
- Check exhaust system for leaks.
- Check fuel system for leaks and to make sure there is adequate supply.
- Check battery terminals for corrosion and battery for good condition.

34.2 STARTING AND STOPPING PROCEDURES

- When starting and stopping your generator, it is best to start it and shut it off without loads.
- Turn off air conditioner and other large loads before attempting to start Genset.
- If Genset is diesel powered, preheat according to operators manual prior to start attempt. (Quiet Diesel units have automatic preheat cycle)
- Push and hold start switch (Do not crank for more than 10 seconds and wait at least 30 seconds before trying again.)
- See “Troubleshooting” section of manual if set does not start.
- Before stopping, turn off air conditioner and other heavy loads, allow set to run to 2 minutes.
- Avoid running for long periods at no load or loads under 1kW.

34.3 RESTARTING A STALLED GENSET

If your Genset has stalled...

- Disconnect or turn off-as many appliances as possible and try restarting the Genset.
- Reconnect appliances one by one up to a total load that doesn't overload the Genset.

34.4 RESETTING CIRCUIT BREAKERS

- If a breaker in the vehicle's main power distribution panel or on the Genset trips, there is either a short circuit or too many appliances being operated at the same time.
- Disconnect or turn off as many appliances as possible and reset the circuit breaker.
- If breaker does not trip, reconnect the appliances, one by one, up to a total load that does not overload the Genset or trip the breaker..

34.5 COLD/HOT WEATHER AND HIGH ALTITUDE OPERATION

- If you travel at high-altitudes or in extreme temperatures, be aware the Genset can lose power in lower-density air caused by such conditions. You may not be able to operate as many electrical devices under these conditions as you could under normal operating conditions.
- Altitude: Power output will decrease 3.5% for each 1000 feet above Onan's base rated altitude of 500 feet
- Temperature: Power output will decrease 1 % for each 10°F increase in ambient temperature above 85°F
- The generator is not the only appliance affected by hot weather, your coach air conditioners require more power to run at high temperatures. For example, if the outside temperature increases from 85°F to 110°F, your air conditioner may require 20-25% more power to run efficiently. This can also limit your ability to run as many electrical devices.
- Make sure the engine oil viscosity is appropriate for the weather temperatures. Onan recommends using 15W-40 oil. OnaMax oil is specially formulated for the operating conditions of your generator.
- Set the altitude adjustment knob (if so equipped) for your altitude.
- Make sure nothing blocks the air flow inlet and outlets from the Genset.
- Keep the Genset clean.
- Perform maintenance when due. Refer to operators manual for maintenance schedules.
- Set the Summer/Winter preheat lever (if so equipped) to Winter, in temperatures below 55°F.

35 GENSET EXERCISE, STORAGE AND RETURNING TO SERVICE

- It is important to run your generator to prevent moisture build-up, fuel system damage, and poor performance.
- If use is infrequent, the Genset should be exercised at least 2 hours every 4 weeks at approximately 1/2 load. Refer to chart in operators manual to calculate load. A single two hour exercise period is better than several short periods.
- If storing the coach for 2 months or more, we recommend using Onafresh fuel stabilizer. . Refer to operators manual for proper instructions

TROUBLESHOOTING		
Problem	Probable Causes	Checks/Solutions
FAILS TO CRANK	1. Low battery. 2. Bad battery connection. 3. Blown fuse.	1. Check battery fluid level 2. Clean & tighten all battery & cable connections. 3. Replace fuse on control panel.
CRANKS SLOWLY	1. Low battery 2. Bad battery connection 3. incorrect oil viscosity. 4. Load connected.	1. Check battery fluid level. 2. Clean & tighten all battery & cable connections. 3. Replace with recommended, viscosity oils. 4. Disconnect load before starting.
CRANKS BUT WON'T START	1. Fuel below Genset pickup level in tank 2. Fuel supply shutoff valve closed. 3. Carbon deposits on spark plug(s) 4. Low oil level.	1. Add fuel. 2. Fully open fuel supply valve. 3. Remove spark plug(s) and replace. 4. Add oil if necessary.
EXHAUSTING BLACK SMOKE	1. Dirty air filter. 2. Choke stuck or misadjusted.	1. Replace air filter 2. Contact an Onan RV Service & Parts Dealer.
UNIT RUNS THEN STOPS, OR STOPS WHEN DRIVING AROUND A CORNER	1. Low on fuel. 2. Low oil level 3. Excess oil.	1. Refill fuel tank 2. Add oil if necessary. 3. Reduce engine oil level.
UNIT STARTS AND RUNS, THEN STOPS WHEN THE START SWITCH IS RELEASED	1. Low fluid levels. 2. Possible overheating. 3. Other functional problem. 4. No AC output.	1. Check & bring all fluid levels up to the appropriate level. 2. Check for blocked air flow or other possible causes of overheating. 3. Contact an Onan RV Service & Parts Dealer 4. Contact an Onan RV Service & Parts Dealer.
UNIT RUNS THEN SURGES	1. Loose or worn spark plug leads. 2. Defective ignition coil, wiring, or control components 3. Faulty spark plug 4. Governor out of adjustment. 5. Combustion air preheat malfunction 6. Carburetor icing. 7. Carburetor varnishing.	1. Check spark plug leads at spark plug & ignition coil. 2. Contact an Onan RV Service & Parts Dealer. 3. Remove spark plug & clean or replace. 4. Contact an Onan RV Service & Parts Dealer. 5. Contact an Onan RV Service & Parts Dealer. 6. Move carburetor pre-heater to the winter position. 7. Try fuel system cleaner and contact dealer if no change.
CIRCUIT BREAKER TRIPS	1. Overloaded circuit.	1. Turn-off some of the electrical load, and reset the circuit breaker.

If additional help is required, call your Onan distributor (using a touch-tone phone) 1-800-888-6626

Onan®
 CUMMINS POWER GENERATION
 1400 73RD AVENUE NE • MINNEAPOLIS, MN 55432
 1-800-888-ONAN FAX 763-574-8289
<http://www.funroads.com>

36 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 appliance manufacturers and, the van chassis 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

36.1 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** - "AN" 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, porta potti and TV
4. **WARNING** - Lock Penthouse Top down.
5. Lock doors when children are present.

36.2 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.

36.3 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

36.4 FIRE SAFETY

- 1 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.
3. 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.
4. Test and use detectors according to manufactures instructions.

36.5 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.

MOTORHOME WEIGHT INFORMATION;	SPORTSMOBILE
VIN OR SERIAL NUMBER _____	
GVWR (GROSS VEHICLE WEIGHT RATING) IS THE MAXIMUM PERMISSIBLE WEIGHT OF THIS FULLY LOADED MOTORHOME.	
UVW (UNLOADED VEHICLE WEIGHT) IS THE WEIGHT OF THE MOTORHOME AS MANUFACTURED AT THE FACTORY WITH FULL FUEL, ENGINE OIL AND COOLANTS.	
SCWR (SLEEPING CAPACITY WEIGHT RATING) IS THE MANUFACTURER'S DESIGNATED NUMBER OF SLEEPING POSITIONS MULTIPLIED BY 154 POUNDS (70 KILOGRAMS).	
CCC (CARGO CARRYING CAPACITY) IS EQUAL TO GVWR MINUS EACH OF THE FOLLOWING: UVW, FULL FRESH (POTABLE) WATER WEIGHT (INCLUDING WATER HEATER), FULL LP GAS WEIGHT AND SCWR	
CARGO CARRYING CAPACITY (CCC) COMPUTATION	<u>POUNDS</u>
GVWR	_____
MINUS UVW (APPROXIMATE)	_____
MINUS FRESH WATER WEIGHT OF _____ @ 8.3 LB/GAL	_____
MINUS LP GAS WEIGHT OF <u>4</u> @ 4.5 LB/GAL	_____
MINUS SCWR OF <u>4</u> PERSONS @ 154 LB/PERSON	_____
= CCC FOR THIS MOTORHOME* (APPROXIMATE) *	_____
*DEALER INSTALLED EQUIPMENT AND TOWED VEHICLE TONGUE WEIGHT WILL REDUCE CCC WEIGHT DISTRIBUTION CONSIDERATION HAS BEEN GIVEN TO THE WEIGHT DISTRIBUTION OF THE SPORTSMOBILE CONVERSION. WHEN LOADING YOUR SPORTSMOBILE YOU SHOULD ALSO CONSIDER THE WEIGHT DISTRIBUTION OF YOUR CARGO. DO NOT OVERLOAD YOUR TIRES.	
WEIGHING YOUR SPORTSMOBILE CAN BE DONE AT ANY CERTIFIED WEIGHT STATION MOST TRUCK STOPS AND MOVING COMPANIES HAVE SCALES. SEE USCALES IN THE YELLOW PAGES	
GVWR (GROSS VEHICLE WEIGHT RATING) MEANS THE MAXIMUM ALLOWABLE LOADED WEIGHT OF THIS MOTORHOME AND ANY TOWED TRAILER OR TOWED VEHICLE	
WARNING: CONSULT OWNER MANUAL(S) FOR SPECIFIC WEIGHING INSTRUCTIONS AND TOWING GUIDELINES INCLUDING AUXILIARY BRAKE REQUIREMENTS FOR ANY TOWED TRAILER OR TOWED VEHICLE BEFORE DRIVING;	

37.1 BEFORE DRIVING

- PENTHOUSE TOP - WARNING LOCK DOWN FRONT/REAR
 - LOOSE CARGO/OBJECTS - SECURE/STOW
 - CAPTAIN SEATS - FACE FORWARD/BACK UPRIGHT
 - SHORE LINES - DISCONNECT, LP GAS VALVE - CLOSE
 - HAVE YOU LEFT ANYTHING? BUCKLE UP! ;
- | | |
|--|---|
| | WHEN DRIVING
DO NOT USE |
| | <input type="checkbox"/> TABLE, STOVE, TOILET
BED, SEATS WITHOUT BELTS |

37.2 QUICK CHECKS ALSO SEE OWNER'S MANUAL

- EXTENSION CORD - Only use 30 Amp approved cord supplied to connect to 110V hookup
- 110V ADAPTER CORD (30 TO 15) — Limits appliance usage, may trip 110V circuit breaker
- WATER TANK — Turn valve "Off" after filling
- APPLIANCE DOESN'T WORK? - First, verify power is entering van. See Owner's Manual
- A/C, IF USING GENERATOR - Wait 3 minutes before restarting. Turn A/C Off" before starting van
- RADIO SWITCH - Switch should be set to "vans battery" when not in use
- TV SWITCH — Turn "Off" when not in use to prevent battery drain
- INVERTER — Turn OFF when not in use. Turn On when connected to 110V hookup
- DETECTORS — Remove 3 Amp fuse if van will not be used for a week or so to prevent battery drain
- WARNING — Reinstall fuse prior to using van. If detector makes low beep, your extra battery is getting low

37.3 MAINTAIN

- GENERATOR — Operate at least 2 hours continuously at % load every month. See Owner's Manual
 - STARCOOL A/C — Operate on 12V and 110V for a while each month. Check air filter each month. unscrew and remove vent in front of Starcool evaporator, wash filter in water and replace
 - TIRE PRESSURES — See label on driver's door post.
- SOMETHING GONE WRONG?;**
- A/C, Furnace, Water Pump, Electrical System, Etc? See Owners Manual
 - SUGGESTION - Review Owner's Manual periodically.

38 OWNER PROTECTION PLAN

38.1 SPORTSMOBILE

Sportsmobile, inc., Sportsmobile Texas, Inc., and Sportsmobile West, Inc. are individual corporations and each warranties only the Sportsmobiles each has manufactured. However, in most all cases, each company will. Service a Sportsmobile that one of the other companies has manufactured. We all work together!

38.2 WHAT IS COVERED

Sportsmobile warrants to the original retail purchaser of each of its new recreation vehicles, which it will repair, or at its option replace, any defective or malfunctioning part of that vehicle other than those exceptions noted in this warranty. This warranty applies only to repairs necessary due to factory defects in materials or workmanship, and resulting from normal use of the recreation vehicle. Warranties for components excluded from this warranty are the sole responsibility of their respective manufacturers.

38.3 HOW LONG COVERAGE LASTS

The warranty period is 48 months or 50,000 miles from date of first retail delivery, which ever comes first. The Penthouse Top and sidewalls are covered against leaking for as long as you own the vehicle.

38.4 WHERE COVERAGE APPLIES

This warranty applies to Sportsmobile products sold and normally operated in the United States or Canada. Warranty protection for vehicles sold and operated outside these areas may differ.

38.5 REPAIR POLICY

Sportsmobile will make necessary warranty repairs to your vehicle at no charge for parts or labor. A reasonable time must be allowed for repair work. Parts and labor for normal or required maintenance are not included under warranty. If you are not in an area within a reasonable distance of Sportsmobile, as determined by Sportsmobile considering the nature of the problem, service may be obtained at a mutually acceptable alternate service point. However, authorization to have the work performed must first be obtained from Sportsmobile. Such authorization does not constitute endorsement of the service point, its work, or any replacement components involved, not supplied or otherwise used by Sportsmobile.

38.6 WHAT IS EXCLUDED

Conditions resulting from abuse or negligence, such as overloading, accident, improper or insufficient maintenance, or environmental damage are not covered by this warranty. In addition, the following components are not included in the Sportsmobile warranty but are covered by warranties from their respective manufacturers; automotive chassis, tires, batteries, sound systems, aluminum wheels, paint or vinyl stripes, finish on fiberglass tops/running boards, carpet, refrigerators, furnaces, air conditioners, generator, TV, awning and such other options, appliances, etc. This warranty also does not cover consequential damages or economic loss. This includes, without limitation, loss of use of the vehicle, expense for alternate transportation, lodging bills, the cost of bringing the vehicle to a service point, or loss of income. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

38.7 IMPLIED WARRANTIES

Any implied warranty of merchantability or fitness for a particular purpose applicable to this vehicle is limited to the duration of this limited warranty. Some states do not allow limitations on how long an implied warranty will last, so the above limitation may not apply to you.

38.8 OTHER ITEMS

This is the only express warranty applicable to Sportsmobile products. Sportsmobile does not authorize any person to create for it any other obligation or liability in connection with this vehicle. The performance of repairs and needed adjustments is the exclusive remedy under this written warranty or any implied warranty. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

38.9 PRODUCT CHANGES

Sportsmobile reserves the right to make product changes, and improvements without imposing any obligation upon itself to install the same upon products theretofore manufactured.

39 EXTERIORCARE

39.1 CUSTOM STRIPES

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 driver's side door post.
3. For the van's base paint color care - please see the van's owners' manual. Base van color touch-up paint is available from your local dealer.

39.2 FIBERGLASS TOPS & RUNNING BOARDS

1. Waxing is recommended periodically throughout the 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. **DO NOT WAX IN DIRECT SUNLIGHT!**

39.3 "GEL COATED SURFACES" - FIBERGLASS TOPS & RUNNING BOARDS

1. If the fiberglass part is white or off-white, most likely the white color is in the gel coat and it has not been painted.

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

1. Most all colored gel coat 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.

39.5 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 pail.

39.6 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:

39.7 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 gel coat 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.

39.8 CAN STAINS BE REMOVED?

1. Most stains can be removed by using a cleaner that is made specifically for gel coated surfaces. Check a marine supply center 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.

SPORTSMOBILE SOCIAL CLUB (SSC)

Don & Joan Helbig • 501 Tennessee Avenue • Alexandria, VA 22305
703-548-2677 • E-mail address: SportsmoSC@aol.com

In July 1996, we took delivery of our long-awaited Sportsmobile! This is such a unique conversion that we thought it would be fun and helpful to meet other owners and share camping experiences.

Using lists of owners provided by Sportsmobile Inc. from the states of DE, MD & VA. The group's first camp-out was held April 26, 1997. It was such a success that in 1998 we wrote to owners all over the US. Since then, two SSC campouts per year in different areas of the Eastern US (April & September)—have brought together hundreds of members! Vehicle ages range from 1991 to present, and members from 40 — 80 plus years. A wide range of occupations and avocations are represented. In addition to the campouts, members receive a Membership Directory and News Letters.

With the support and encouragement of Mr. Charles Borskey President of Sportsmobile in Austin, Texas, we officially formed the Sportsmobile Social Club in February 1997. We hope you would like to join

Membership Conditions:

- Eligibility is limited to owners of Sportsmobile conversions.
- Members, who have paid dues for the year of April 1 through March 31, will receive the Newsletter, as well as notices of camp-outs. The Club will organize two camp-outs annually for members. Locations will vary throughout the U.S.
- Distribution of the Membership Directory is limited to dues-paying members, who give permission for their names to be shared with other owners through inclusion in the Membership Directory. We give our word that we will never disseminate the directory information beyond the Club members. The same compliance is expected from all members. This is a co-op, non-commercial Club!
- For additional information, please send us the tear-off below.

Looking forward to hearing from you!

Don & Joan Helbig

Please send me information on the Sportsmobile Social Club!

From: _____

Date: _____
Phone: _____
E-mail address: _____