

# INSTALLATION AND OPERATION MANUAL



## DIRECT VENT GAS WATER HEATER DIRECT SPARK IGNITION (DSI)



### MODELS

SW10D • SW10DM • SW10DE • SW10DEM

### FOR INSTALLATION IN RECREATIONAL VEHICLES AND MOBILE HOUSING

#### FOR YOUR SAFETY

##### 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 VEHICLE.
- 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.

#### FREEZE WARNING

DRAIN HEATER IF SUBJECT TO FREEZING TEMPERATURES.

**WARNING:** IMPROPER INSTALLATION, ADJUSTMENT, ALTERATION, SERVICE OR MAINTENANCE CAN CAUSE INJURY OR PROPERTY DAMAGE. REFER TO THIS MANUAL FOR ASSISTANCE OR ADDITIONAL INFORMATION, CONSULT A QUALIFIED INSTALLER, SERVICE AGENCY OR THE GAS SUPPLIER.

#### FOR YOUR SAFETY

DO NOT STORE OR USE GASOLINE OR OTHER COMBUSTIBLE MATERIALS OR LIQUIDS NEAR OR ADJACENT TO THIS HEATER OR ANY OTHER APPLIANCE. THIS APPLIANCE SHALL NOT BE INSTALLED IN ANY LOCATION WHERE FLAMMABLE LIQUIDS OR VAPORS ARE LIKELY TO BE PRESENT.

AN ODORANT IS ADDED TO THE GAS USED BY THIS WATER HEATER.

INSTALLER: AFFIX THESE INSTRUCTIONS TO OR ADJACENT TO WATER HEATER.  
OWNER: RETAIN THESE INSTRUCTIONS AND WARRANTY FOR FUTURE REFERENCE.

ALL TECHNICAL AND WARRANTY QUESTIONS SHOULD BE DIRECTED TO THE COMPANY LISTED ON THE WARRANTY, OR RATING PLATE WHICH CAME WITH YOUR WATER HEATER.

For future reference, you should record the following information:

MODEL NUMBER \_\_\_\_\_

SERIAL NUMBER \_\_\_\_\_

STOCK NUMBER \_\_\_\_\_

DATE OF PURCHASE \_\_\_\_\_



SUBURBAN MANUFACTURING COMPANY  
Post Office Box 388  
Dayton, Tennessee 37321  
423-775-2131  
Fax: 423-775-7015

## INSTALLATION REQUIREMENTS

**CAUTION:** If possible, do not install the water heater to where the vent can be covered or obstructed when any door on the trailer is opened. If this is not possible, then the travel of the door must be restricted in order to provide a 2" minimum clearance between the water heater vent and any door whenever the door is opened.

**CAUTION:** Due to the differences in vinyl siding, this appliance should not be installed on vinyl siding without first consulting with the manufacturer of the siding or cutting the siding away from the area around the appliance vent.

**CAUTION:** In any installation in which the vent of this appliance can be covered due to the construction of the RV or some special feature of the RV such as slide out, pop-up, etc., always insure that the appliance cannot be operated by setting the thermostat to the positive "OFF" position and shutting off all electrical and gas supply to the appliance.

**CAUTION:** Do not install this appliance to where the vent terminates below a slide-out. This appliance is not to be installed under any overhang. It must be free and clear of any type overhang.

This installation must conform with the requirements of the authority having jurisdiction or in the absence of such requirements with the latest edition of the National Fuel Gas Code (ANSI Z220.1) and the latest edition of the American National Standard for Recreational Vehicles-501C. In Canada the installation should conform with the following standards.

### A. For Installation in Recreational Vehicle

1. Gas - CSA standard CSA Z240.4.2 Installation Requirements for Propane Appliances and Equipment in Recreational Vehicles.
2. Electrical - CSA standard C22.2 No. 148/2240.8.2 Electrical Requirements for Recreational Vehicles.
3. Plumbing - CSA standard CSA Z240.3.2 Plumbing Requirements for Recreational Vehicles.

### B. For Installation in Mobile Housing

1. Gas - CSA standard CSA Z240.4.1 Installation Requirements for Gas Burning Appliances and Equipment in Mobile Homes.
2. Electrical - CSA standard CSA C22.1 Canadian Electrical Code Part 1.
3. Plumbing - CSA standard CSA Z240.3.1 Plumbing Requirements for Mobile Homes.

Au Canada, l'installation doit satisfaire aux normes suivantes:

### A. Pour installation dans les véhicules de loisir.

1. Gaz - Norme ACNOR Z240.4.2 Exigences d'installation des appareils et de l'équipement à propane dans les véhicules de loisir.
2. Électricité - Norme ACNOR C22.2 No. 148/2240.8.2 Exigences électriques des véhicules de loisir.
3. Plomberie - norme ACNOR Z240.3.2 Exigences de plomberie des véhicules de loisir.

### B. Pour installation dans une maison roulante

1. Gaz - Norme ACNOR Z240.4.1 Exigences d'installation des appareils et de l'équipement à gaz dans les maisons roulantes.
2. Électricité - Norme ACNOR C22.1 Première partie du Code Électrique Canadien.
3. Plomberie - Norme ACNOR Z240.3.1 Exigences de plomberie des maisons roulantes.

The appliance shall be disconnected from the gas supply piping system during any pressure testing of the system.

The appliance and its gas connections shall be leak tested before placing the appliance in operation.

All air for combustion must be supplied from outside the structure. Air for combustion must not be supplied from occupied spaces.

## INSTALLATION INSTRUCTIONS

Minimum clearance from combustible construction on sides, top, floor and rear = 0 inches. Provide room for access to rear of heater for servicing.

Dégagement minimal de constructions combustibles sur les côtés, le dessus, le plancher et à l'arrière = 0 pouces. Prévoyez suffisamment d'espace pour qu'un technicien puisse avoir accès à l'arrière du chauffe-eau.

Provide an opening flush with floor in outer wall of coach as shown. Wall of coach should be framed as shown in Figure 1. Make sure that the wall is flat below. Do not install on carpet unless the carpet is covered by a metal or wood shield covering the entire area underneath the water heater. If you prefer, you may cut away the carpet from this area.

Quand le chauffe-eau est installé directement sur la table, la bête, ou sur autre matière combustible autre que parquet de bois, le chauffe-eau aura installé sur panneau de métal ou de bois au moins que deux pouces plus grand que le

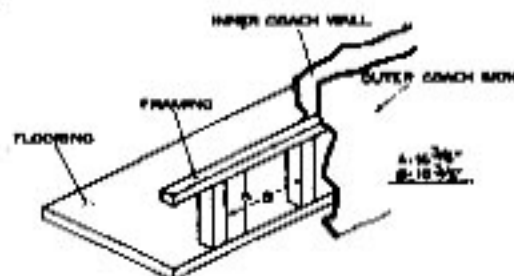


Figure 1

largeur et la longueur du chauffe-eau. Si vous préférez, vous pouvez couper le tapis ou retirer du parquet, si n'est pas bois, d'en-dessous de chauffe-eau et étendant deux pouces de la largeur et la longueur du chauffe-eau.

## INSTALLATION USING FLUSH MOUNT FRAME & DOOR

(See Figure 2 for Illustration)

A. Position heater into framed opening as illustrated. Slide unit into opening until the front of the control housing is flush with the exterior coach skin.

B. Secure the control housing to the coach wall (framed opening) at the top and sides of control housing compartment using screws or other suitable fasteners. Place the screws or fasteners back far enough from the front edge of control housing (approximately 1 1/2") in order to clear the flange on door frame. The door frame, when installed, must not overlap onto screws or other fastener heads. NOTE: Caulk around screw or fastener heads to assure water tight seal.

C. Install checks, one on each side of water heater, as illustrated in Figure 1A.

D. On mess or yoder type sidewalls, flatten the wall area around the opening.

E. Caulk around framed opening (trailer skin) as illustrated.

F. Caulk around door frame using 2 beads of silicone caulking (or suitable caulking) - one on flange to seal to control housing and one around back side of frame to seal to coach skin. (See detail A in illustration.)

G. Insert door frame into control housing and secure with four (4) No. 8-16 x 3 1/2" screws provided.

H. To install door, place the two holes in the bottom of the door over the door pins on the frame. Close the door so that the latch protrudes through the slot in the door. Turn latch 90 degrees to latched door.

I. The module board on models SW10D and SW10DE is not secured to the water heater. It is to be permanently mounted by the installer.

The module board must be mounted to where it is accessible for service yet out of way of children. It should be located in a place where it cannot be subjected to moisture, cleaning chemicals, flammable vapors and liquids, etc.

The board and all wiring to the board must be protected in order to prevent damages and accidental contact with these parts. The module board may be mounted with two (2) No. 8 x 5/8 screws or other suitable hardware.

## MAKING WATER CONNECTIONS

A. Water connections are made at the rear of the water heater. Refer to Figure 3 for all models except SW10DM and SW10DEM. For SW10DM and SW10DEM, refer to Figure 4 or 5. Connect the hot and cold water lines to the 1/2" female pipe fitting provided on rear of tank. These fittings are marked "HOT" and "COLD". NOTE: Inside each fitting is a plastic fill tube. Its purpose is to enhance water circulation. DO NOT REMOVE PLASTIC FILL TUBES.

**IMPORTANT:** Use a pipe thread compound suitable for potable water or pipe thread tape on all connections to assure they will not leak.

B. For ease of removal, it is suggested that a pipe union be installed in each 90° fit.

C. Fill tank with water. Open both hot and cold water faucets to expel air from tank. When tank is filled and water flows from faucets, close both faucets and check all connections for leaks.

**CAUTION:** If you use air pressure to check for leaks, the pressure must not exceed 30 PSI (in accordance with 4-9.1.1 of ANSI A119.2).

NOTE: After leak testing, drain water from tank.

## MAKING GAS CONNECTIONS

A. Connect a 3/8" gas supply line to the 3/8" flare fitting or gas valve located in the control housing. When making the gas connection, hold the gas fitting on the valve with a wrench when tightening the flare nut. Failure to hold fitting secure could result in a gas leak due to fitting being damaged. NOTE: It will be necessary to remove the grommet from the control housing, make the gas connection at the valve, then reinstall grommet.

**WARNING!** It is imperative that grommet and gas line through grommet be caulked air tight. If not tightly sealed, moisture and potential harmful fume products could vent through opening and into living area of trailer. (See Figures 6.)

B. Turn on gas and check all fittings and connections for leaks, using a soap and water solution. Correct even the slightest leak immediately.

**WARNING!** Do not use an open flame to check for leaks.

## WATER HEATER AS VIEWED FROM INSIDE R.V.

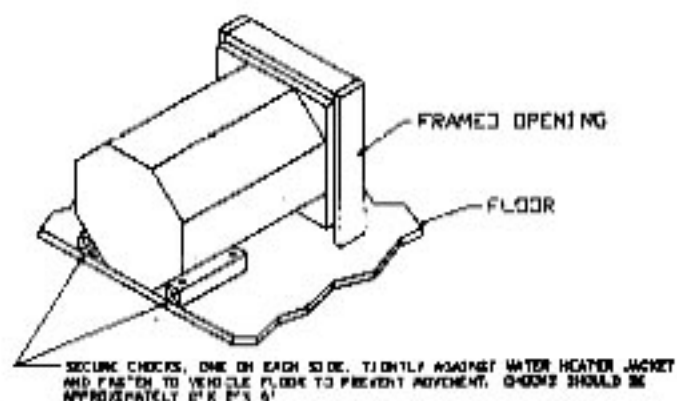


Figure 1A

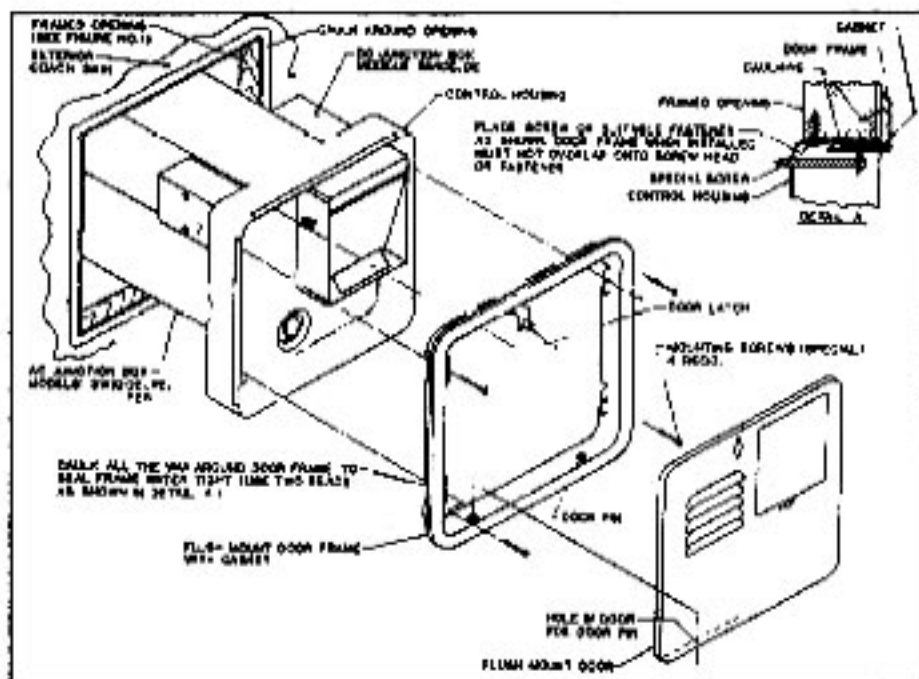


Figure 2

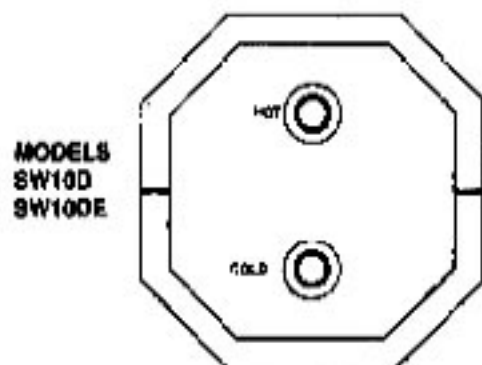
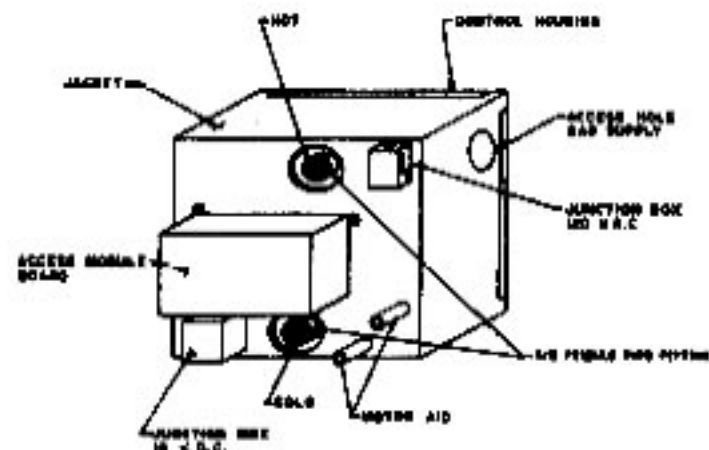
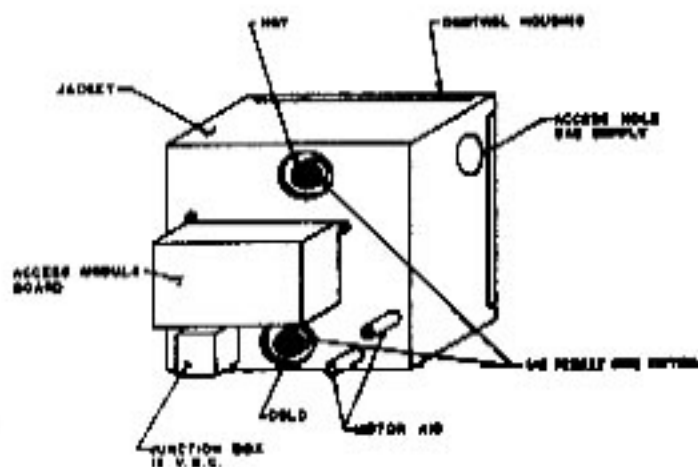


Figure 3



MODEL SW10DEM  
Figure 5



MODEL SW10DEM  
Figure 4

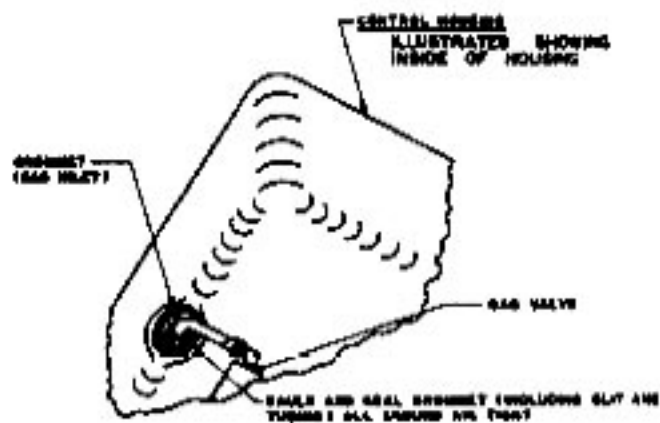


Figure 6

## MAKING ELECTRICAL CONNECTIONS 12 VOLTS D.C.

- A. Applicable to following models: SW100, SW10DE, SW10DM, and SW10DEM.
- B. Refer to Figure 3 for location of D.C. junction box on models SW100 and SW10DE. Refer to Figure 4 and 5 for location of D.C. junction box on models SW10DM and SW10DEM.
- C. The electrical connections must be made in accordance with local codes and regulations. In the absence of local codes and regulations, refer to the latest edition of the National Electrical Code ANSI/NFPA No. 70.
- In Canada, the electrical installation should conform with CSA standard CSA C22.2 No. 148/2340.8.2 Electrical Requirements for Recreational Vehicles and CSA C22.1 Canadian Electrical Code Part 1 when installing the unit in recreational vehicles and mobile homes respectively.
- Au Canada, l'installation électrique doit satisfaire à la norme ACGNOR 22.2 N148/2340.8.2 Exigences électriques des véhicules de loisir ou à la norme ACGNOR C22.1 Première Partie du Code Électrique Canadien selon que l'appareil est installé dans un véhicule de loisir ou une maison roulante.
- D. Make sure the water heater is filled with water before making the electrical connections.
- E. Make the 12 Volt D.C. electrical connections following the wiring diagram illustrated in Figure 7.

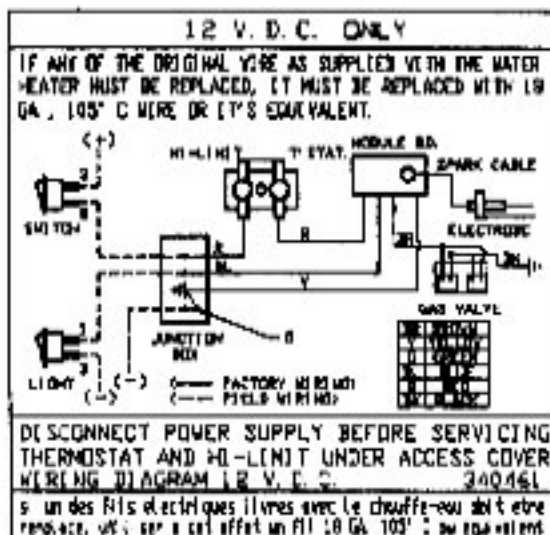


Figure 7

## MAKING ELECTRICAL CONNECTIONS 120 VOLTS A.C.

- A. Applicable to following models: SW10DE and SW10DEM.
- B. Refer to Figure 2 for location of A.C. junction box on model SW10DE. Refer to Figure 5 for A.C. junction box on model SW10DEM.
- C. The electrical connections must be made in accordance with local codes and regulations. In the absence of local codes and regulations, refer to the latest edition of the National Electrical Code ANSI/NFPA No. 70.
- In Canada, the electrical installation should conform with CSA standard CSA C22.2 No. 148/2340.8.2. Electrical requirements for Recreational Vehicles and CSA C22.1 Canadian Electrical Code Part 1 when installing the unit in recreational vehicles and mobile homes respectively.
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- D. Be sure the switch for the electrical element is "OFF" and that the water heater is filled with water before making electrical connections. Failure to do so will result in burn-out of the electrical element.
- E. Check rating plate and wiring diagram (Figure 6) before proceeding. Install a fused safety switch or circuit breaker of adequate capacity between heater and electrical power source. Attach the black and white wires from the fused switch or breaker to corresponding colored wires in heater junction box. A green wire from a well grounded source must be attached to the green nut in the junction box.

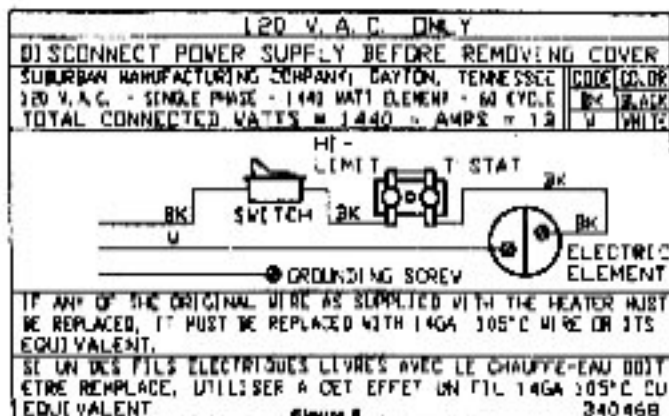


Figure 8

## INSTALLATION OF MOTOR AID HEAT EXCHANGER

- A. Place copper "Y"s in heater as shown in Figure 9.
- B. Secure hoses to "Y"s with hose clamps.
- C. Attach hose from motor-aid heat exchanger to "Y"s.
- D. Secure hoses to motor-aid and "Y"s with clamps.
- E. Check all connections for water leaks and proper water circulation through motor-aid heat exchanger, with engine running.
- The system should be checked annually for deterioration of heater hose and hose connections. Replace as needed.

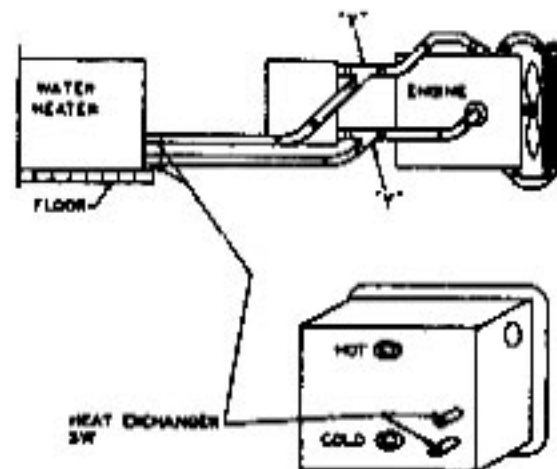


Figure 9

## MAINTENANCE

**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 10 for correct and incorrect burner flame appearance.)
- B. Periodically inspect 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 venting air.
  3. Check to be sure there is no flame present at burner OFF 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 connections 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").

## 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 DGI 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 part 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 of LP gas bottles. (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 heater. 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 water heater pilot and all ignition systems are "OFF" during any 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 140°F (60°C). Water temperatures over 125°F (49°C) 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 test water before bathing or showering.

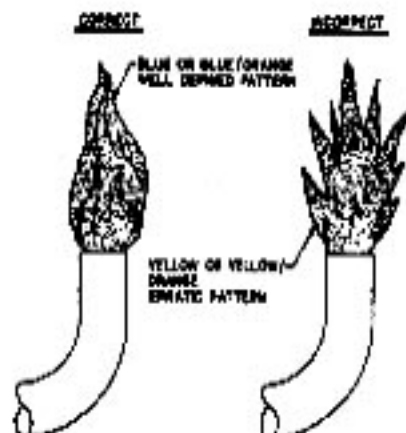


Figure 10

## HIGH ALTITUDE OPERATION

Suburban's water heaters are certified by nationally recognized testing laboratories for operation without modifications at altitudes up to 4,500 feet. Operation above this elevation may require derating by 4 percent for every 1,000 feet above sea level. As an example, at 8,000 feet, the water heater should be derated approximately 32 percent.

If the unit is not properly derated, lack of sufficient oxygen for combustion may produce improper burner operation. Pilot outage caused by burner lift-off or sooting from a yellow burner may occur indicating the possibility of carbon monoxide. You may also notice a lack of efficiency in heating the water because of incomplete combustion of the burner at these higher altitudes.

Consult with the local gas company, your dealer, an RV service agency or Suburban Manufacturing Company for proper derating of the unit. Change-out of the orifice (derating) should be done by the dealer or a qualified service agency.

**NOTE:** It is important that once the unit has returned to lower elevation (below 4,500 feet) the high altitude derating and pilot adjustments (if equipped) be reversed for proper operation of the unit.

## 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 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.

**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. They could create an unsafe condition and will also void all warranties.

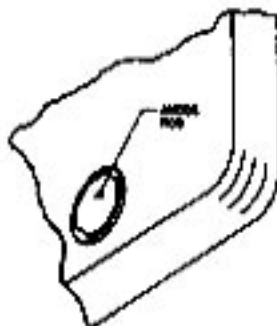


Figure 11

## 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.

## 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.

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:

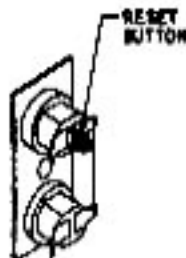
1. Turn off water heater.
2. Turn off cold water supply line.
3. Open a faucet in the RV.
4. Pull out on the handle of the Pressure Relief (P & T) Valve and allow water to flow from the valve until it stops.
5. Release handle on P & T Valve - it should snap closed.
6. Close faucet and turn on cold water 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 to relieve the pressure caused by thermal expansion. Contact your local dealer for assistance.

## THERMOSTAT AND MANUAL RESET MODELS: BW10D, BW10DE, BW10DM and BW10DEM

The model 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 100°F. push reset button to re-activate burner.



120 VDC, T-STAT  
H-LIMIT

Figure 10

## THERMOSTAT AND MANUAL RESET MODELS: BW10DE and BW10DEM

The model 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 the electric element.

To activate element, the water temperature must be below 100°F. push reset button to re-activate the electric element.



120 VAC, T-STAT  
H-LIMIT

Figure 11

## 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 a 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.

## ODOR FROM HOT WATER SYSTEM

Odor from the hot water system is not a service problem and many water supplies contain sufficient amounts of sulphur to produce an odor. The odor is similar to rotten eggs and is often referred to as "sulphur water". Sulphur water is not harmful - only unpleasant to smell. Sulphur water can be caused by a chemical action or by bacteria. The solution to eliminate is heavy chlorination of the water system. Add about six (6) ounces of chlorine (common household liquid bleach) to each 10 gallons in the water tank. Then run the heavily chlorinated water throughout the system, opening each faucet one at a time until you smell the chlorine. Let the RV sit for a few days and the chlorine should take care of the problem. Then you will need to take care of the chlorine. If you don't have a water filtration system that removes chlorine, you will have a problem getting rid of the chlorine taste. You might consider adding such a system because it allows you to keep the water chlorinated and this prevents several problems, including sulphur water. Chlorination also takes care of other types of bacteria and viruses.

## REMOVING WATER HEATER

1. Shut off gas supply and disconnect gas supply line from water heater.
2. On all Electric Models, disconnect 120 V.A.C. supply at junction box mounted on heater.
3. On all DSI Models, disconnect 12 V.D.C. power supply at junction box on heater.
4. On Models BW10D and BW10DE disconnect all wires at module board.
5. Shut off water supply. Drain water from tank following instructions under "Draining and Storage".
6. Disconnect hot and cold water lines from water heater.
7. Remove screws or nuts securing control housing to framed opening.
8. Slide heater out. To reinstall, follow instructions in manual under "Installation Instructions".

**FOR YOUR SAFETY READ BEFORE LIGHTING**

**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 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.

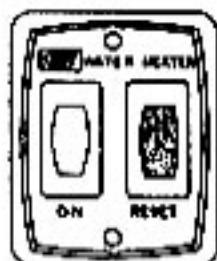
**WHAT TO DO IF YOU SMELL GAS**

- 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 INSTRUCTIONS**

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 burner does not light on first try, the system will lockout.
8. If lockout occurs before main burner lights, turn switch to "OFF", 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.

If the burner still not come on, the following items should be checked before calling a service person.

1. Switch turned off.
2. Gas supply to heater is empty or turned off.
3. Reset button on EDO is tripped.

**TO TURN OFF WATER HEATER**

1. Turn switch to "OFF" position.
2. Turn off electrical power to the appliance.
3. Turn off gas supply.
4. If vehicle is to be stored or heater is going to be lashed off while subject to freezing temperature, drain water heater. (See "Draining and Storage Instructions.")

**DIRECTIVES DE FONCTIONNEMENT**

1. **ARRÊTEZ!** Lisez attentivement les renseignements de sécurité fournis.
2. Coupez toute alimentation électrique vers l'appareil.
3. Coupez l'alimentation en gaz.
4. Attendez cinq minutes que les vapeurs de gaz se dissipent. Si vous sentez le gaz, **ARRÊTEZ!** Suivez les directives de l'article B sous "Renseignements de sécurité". Si vous ne sentez pas le gaz, passez à la prochaine étape.
5. Allumez le gaz.
6. Allumez l'électricité vers l'appareil.
7. Mettez le commutateur en position "ON".

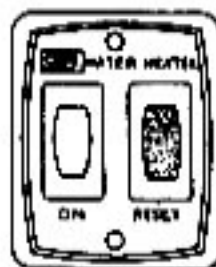
8. Si le blocage survient avant que le brûleur principal ne s'allume, placez le commutateur "OFF", attendez cinq (5) secondes et remettez-le en position "ON". Cette manœuvre recommencera le cycle d'allumage. L'allumage initial peut nécessiter plusieurs cycles d'allumage avant que l'air ne soit entièrement évacué des conduits de gaz.

Si vous n'arrivez pas à mettre le chauffe-eau en marche vérifiez de qui suit avant d'appeler un technicien.

1. Le commutateur est en position "OFF".
2. L'alimentation en gaz vers le chauffe-eau est vide ou coupée.
3. Le reset à zéro (EO) est déclenché.

**POUR ARRÊTER LE CHAUFFE-EAU**

1. Mettez le commutateur en position "OFF".
2. Coupez toute alimentation électrique vers l'appareil.
3. Coupez toute alimentation en gaz vers l'appareil.
4. Si vous comptez entreposer l'appareil ou arrêter le chauffe-eau de sorte qu'il soit exposé au gel, videz-le (voir "Directives de Drainage Et D'entreposage").



## PARTS ILLUSTRATION AND REPLACEMENT PARTS LIST

Only factory authorized parts are to be used. Do not attempt to repair defective parts.

When ordering repair parts from your dealer or a distributor, always give the following information:

1. Part Number (Not Item No.)
2. Part Description
3. Model No. and Serial No. of your Heater
4. Number of Parts Required

### PARTS LIST FOR MODELS BW100 and BW100E (Figure 14)

Item No.	Description	Part Number	
		BW100	BW100E
1	Foam Jacket (2 Required)	101636	101636
	(With any order for Foam Jacket, also order Bending Roll 620772)		
2	Switch, Lamp and Pilot Assembly	232229	232229
3	Module Board	232291	232291
4	Cover Module Board	080487	080487
5	Bushing, Snap 1/2"	070270	070270
6	Bushing, Snap 1/2"	310403	310403
7	Nut 10-32 Keps (Green)	121576	121576
8	Bushing, Snap 7/8"	230218	230218
9	Screw 410x 3/8	121252	121252
10	Cover, Junction Box	080447	080447
11	D.C. Junction Box Assembly	060488	060488
12	Screw 8 x 3/8 Hex HD (Junction Box Mounting)	121668	121668
13	Screw 10 x 3/8 (5 Required)	121230	121230
14	Flue Collector, Back Assembly Complete	101879	101879
15	Screw 10 x 1/4	121577	121577
16	Valve, Pressure Relief	180828	180828
17	Screw 8 x 3/8 Hex HD (2 Required)	121889	121889
18	Gasket, Thermostat Cover	070887	070887
19	Cover, Thermostat	080454	080454
20	Screw 3-32 x 3/8 Hex HD (2 Required)	121407	121407
21	Bracket, Electrode Mounting	083187	083187
22	Drummer	070874	070874
23	Electrode	232258	232258
24	Screw 8-32 x 3/8 Hex HD (1 Required)	121407	121407
25	Burner Assembly	010818	010818
26	Orifice, Cup 1.13mm	180900	180900
27	1/4 Lock Nut (Mount to Valve)	171475	171475
28	Screw 8 x 3/8 Hex HD (3 Required)	-----	121668
29	Cover, Element	-----	080445
30	Cassid Element Cover	-----	070888
31	Bushing, Snap 1/2"	-----	070270
32	Archie	232419	232419
33	Orifice, Gas Inlet	070889	070889
34	A.C. Junction Box Assembly	-----	080480
35	Switch Assembly 120 V.A.C. T-Start-Link	-----	232217
36	Switch Assembly 120 V.D.C. T-Start-Link	232219	232219
37	Nut 10-32 Keps (One Per Switch)	121694	121694
38	Bushing, Snap 3/8"	070483	070483
39	Bushing, Snap 1/2"	070270	070270
40	Switch, Electric Element	-----	232266
41	Screw 10 x 3/8 (5 Required)	121252	121252
42	Gas Fitting	170374	170374
43	Electric Element with Gasket	-----	230788
44	Valve, Gas (LP)	121150	121150
45	Manifold Outlet	171480	171480
46	Valve Mounting Bracket Assembly	060246	060246
47	Screw 8-32 x 3/8 Hex HD THD Cut (2 Required)	121455	121455
48	Nut 1/4-20 x 1/2 Keps	121474	121474
49	Burner Bracket Assembly	060244	060244
50	Screw 10-34 x 1/2 White Lock (2 Required)	121458	121458
51	1/4 Lock Nut (Mount to Burner)	171463	171463
52	Electrode Wire (Not Shown)	232458	232458



MODEL & SERIAL PLATE

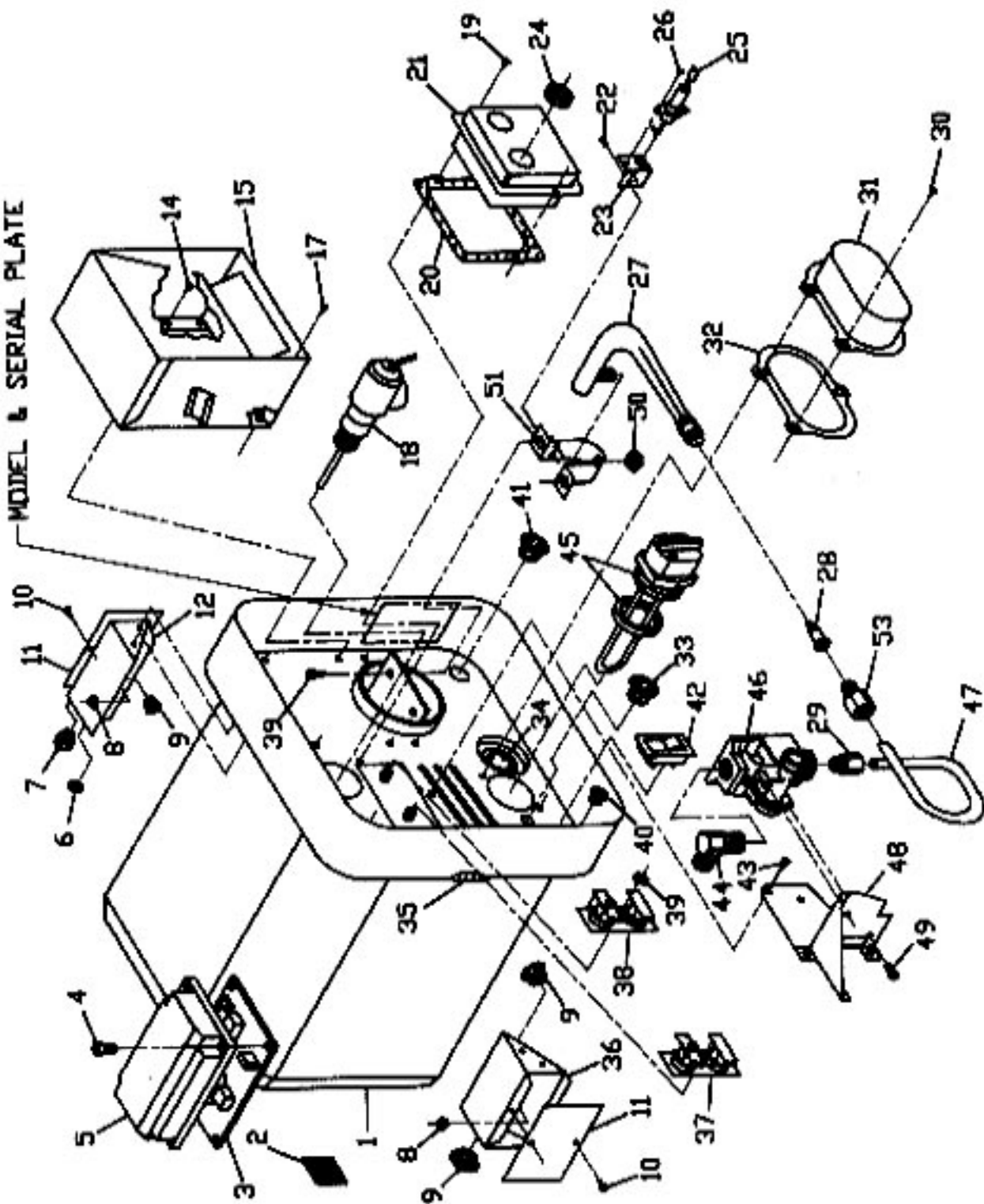


Figure 14

**PARTS LIST FOR MODEL SW10DM**  
(Figures 15 and 16)

Item No.	Description	Part Number	Item No.	Description	Part Number
1	Cover, Module Board	090340	33	Screw 8-32 x 3-0 Hex HD (1 Required)	121407
2	Screw 10 x 3/8 (3 Required)	121252	34	Burner Assembly	010815
3	Screw 8 x 3/8 Hex HD (3 Required)	121469	35	Orifice, Cup 1.15mm	180800
4	Cover Junction Box	090344	36	1/4 Lock Nut (Manifold to Valve)	171475
5	Screw 10-32 x 3/8 (Green)	121702	37	Valve, Gas (LP)	181109
6	Screw 8 x 5/8 (2 Required)	121357	38	Manifold Outlet	171425
7	Switch, Lamp and Pilot Assembly	230229	39	Valve Mounting Bracket Assembly	090343
8	Bushing, Snap 7/8"	230218	40	Screw 8-32 x 3/8 Hex HD THD Cut (2 Required)	121465
9	Insulator, Module Board	070207	41	Switch Assembly 12 v.d.c. T-Block-Lim	230319
10	Module Board	230291	42	Nut 10-32 Kept	121468
11	Screw 10 x 5/8 (5 Required)	121252	43	Screw 10 x 3/8 (5 Required)	121252
12	Flue Collector Back Assembly Complete	01679	34	Gas Piping	170374
13	Screw 10 x 1/4	21577	35	Bushing, Snap 1/2"	C70270
14	Valve, Pressure Relief	140928	36	Bushing, Snap 3/8"	C70489
15	Screw 8 x 3/8 Hex HD (2 Required)	121659	37	Arched	230418
16	Gasket, Thermostat Cover	070987	38	Grommet, Gas Inlet	C70499
17	Cover, Thermostat	090454	39	Screw 10-24 x 1/2 Whit Lock (2 Required)	121459
18	Screw 8-32 x 3/8 Hex HD (2 Required)	121427	40	Burner Bracket Assembly	060244
19	Grommet, Electrode Mounting	060187	41	Nut 1/4-20 Hex Kept	181470
20	Grommet	070874	42	1/4 Lock Nut (Manifold to Burner)	171463
21	Electrode	232258	43	Electrode Wire (Not Shown)	232464

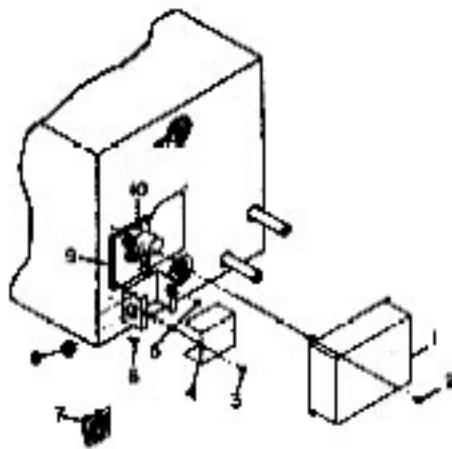
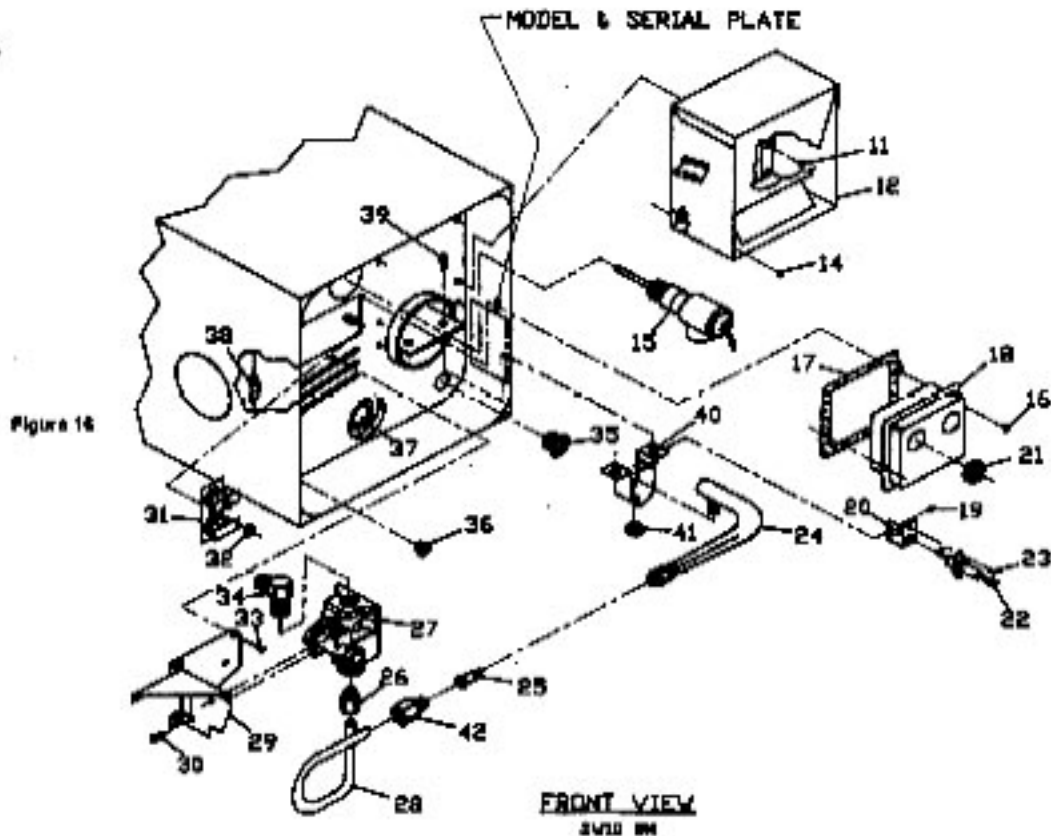


Figure 15

REAR VIEW  
SW10 DM



FRONT VIEW  
SW10 DM

**PARTS LIST FOR MODEL SW10DEM**  
(Figure 17 and 18)

Item No.	Description	Part Number	Item No.	Description	Part Number
1	Cover Module	SW10DEM	29	Wire, Cup 1 1/8mm	190800
2	Screw 10 x 3/8 (3 Required)	091561	30	1/4 Lock Nut (Manifold to Valve)	171475
3	Screw 4 x 3/8 Hex HD (2 Required)	121252	31	Screw 8 x 3/8 Hex HD (3 Required)	121498
4	Cover Junction Box (12 V.D.C.)	060344	32	Gasket, Element	060446
5	Screw 10-32 x 3/8 (Green)	121702	33	Gasket, Element Cover	070986
6	Screw 4 x 5/8 (2 Required)	121357	34	Switch, Electric Element	230250
7	Switch, Lamp and Pilot Assembly	250291	35	Anode	230418
8	Bushing, Snap 7/8"	230310	36	Oronnel, Gas Inlet	070480
9	Insulator, Module Board	070807	37	Switch Assembly, 180 V.A.C. T-Start-Link	230317
10	Module Board	230281	38	Switch Assembly, 12 V.D.C. T-Start-Link	230319
11	Cover, Junction Box (120 V.A.C.)	090484	39	Nut 10-32 Keys (1 Per Switch)	131098
12	Nut 10-32 Keys (Green)	121679	40	Bushing, Snap 3/8"	070488
13	Bushing	070488	41	Bushing, Snap 1/2"	070270
14	Screw 10 x 3/8 (3 Required)	121252	42	Screw 10 x 5/8 (8 Required)	121032
15	Rus Collector Back Assembly Complete	101879	43	Gas Fitting	170074
16	Screw 10 x 1/4	121877	44	Electric Element with Gasket	500769
17	Valve, Pressure Relief	180026	45	Valve, Gas (LP)	171109
18	Screw 8 x 3/8 Hex HD (2 Required)	121889	46	Manifold, Outlet	171480
19	Gasket, Thermostat Cover	070687	47	Valve Mounting Bracket Assembly	060286
20	Cover, Thermostat	090487	48	Screw 8-32 x 5/8 Hex HD THD Cut (2 Required)	121886
21	Screw 8-32 x 3/8 Hex HD (2 Required)	121407	49	Bushing, Snap 1/2"	070270
22	Bracket, Electrode Mounting	063187	50	Nut 1/4-20 Hex Slaps	121474
23	Oronnel (3 Required)	070674	51	Burner Bracket Assembly	060444
24	Screw 8-32 x 3/8 Hex HD (1 Required)	121407	52	Screw 10-24 x 1/2 Whit Lock (2 Required)	121458
25	Electrode	230288	53	1/4 Lock Nut (Manifold to Burner)	171463
26	Burner Assembly	010813	54	Electrode (Not Shown)	230484

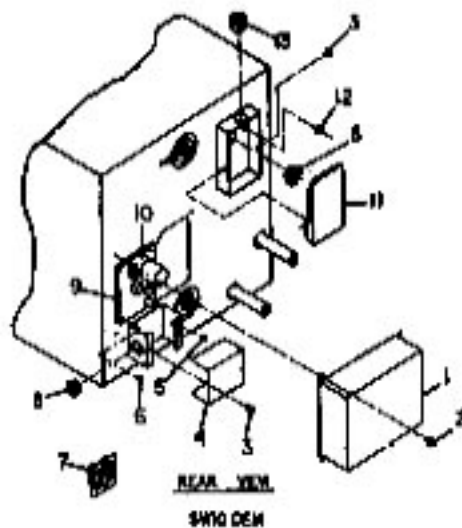
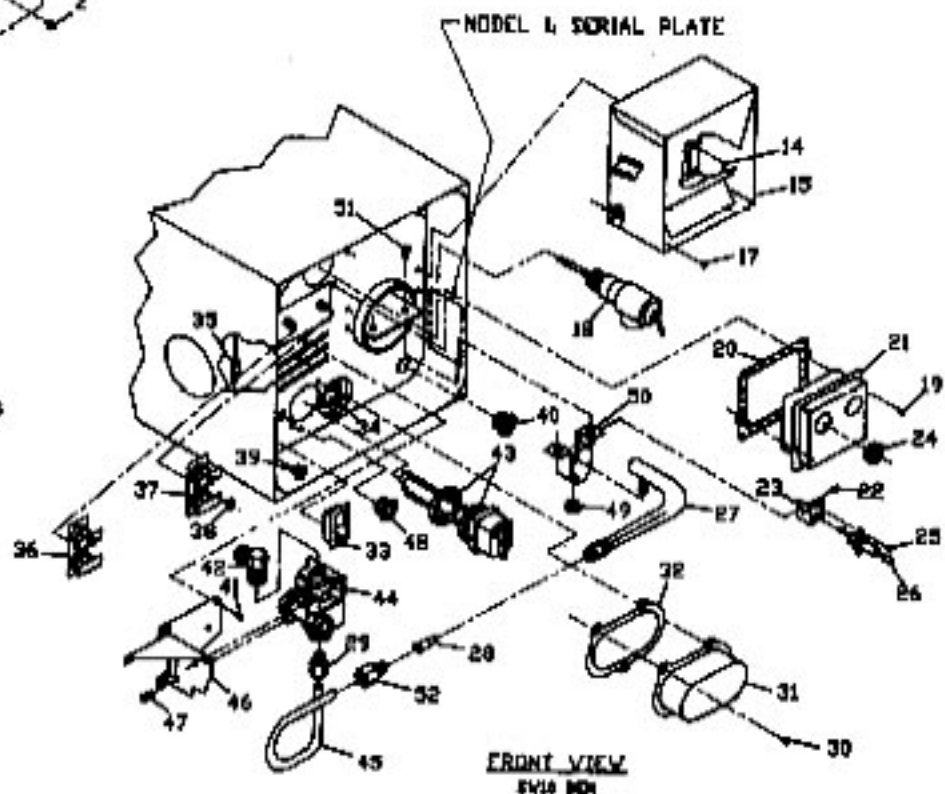


Figure 17

Figure 18



# **LIMITED WARRANTY**

## **SUBURBAN RECREATIONAL VEHICLE WATER HEATER**

### **LIMITED ONE YEAR WARRANTY**

This Suburban product is warranted to the original purchaser to be free from defects in material and workmanship under normal use and maintenance for a period of one year from date of purchase whether or not actual use begins on that date. It is the responsibility of the consumer/owner to establish the warranty period. Suburban does not use warranty registration cards for its standard warranty. You are required to furnish proof of purchase date through a Bill of Sale or other payment record.

Suburban will replace any parts that are found defective within the first year and will pay a warranty service allowance directly to the authorized Suburban Service Center at rates mutually agreed upon between Suburban and its authorized service centers. Replacement parts will be shipped FOB the shipping point within the Continental United States, Alaska and Canada to authorized service centers performing such repairs. All freight, shipping and delivery costs shall be the responsibility of the owner. The exchanged part or unit will be warranted for only the unexpired portion of the original warranty. Before having warranty repairs made, confirm that the service agency is an authorized service center for Suburban. **DO NOT PAY THE SERVICE AGENCY FOR WARRANTY REPAIRS; SUCH PAYMENTS WILL NOT BE REIMBURSED.**

Suburban reserves the right to examine the alleged defect in the water heater or component parts, and it is the owner's obligation to return the water heater and/or component parts to Suburban or its representative. When returning a water heater, it must include all component parts and the serial number plate. Returned component parts must be individually tagged and identified with the water heater's model number, serial number and date of installation.

For warranty service, the owner/user should contact the nearest authorized Suburban Service Center, advising them of the model and serial numbers (located on the water heater) and the nature of the defect. Transportation of the unit to and from the Service Center and/or travel expenses of the Service Center to your location is the responsibility of the owner/user. A listing of authorized Service Centers is included in the owner's packet supplied with the water heater and a current listing may be obtained from Suburban. If you cannot locate an authorized service center locally, the service agency chosen to perform warranty repairs must contact our Service Department at 423-775-2131 for authorization. Unauthorized repairs made will not be paid by Suburban.

### **LIMITED THREE YEAR WARRANTY ON TANK**

The inner tank is further warranted to be free from defects in material and workmanship for three years from the date of original purchase. A replacement water heater will be provided under the same conditions as stated in the one year warranty EXCEPT no labor reimbursement will be provided.

### **LIMITATION OF WARRANTIES**

ALL IMPLIED WARRANTIES (INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY) ARE HEREBY LIMITED IN DURATION TO THE PERIOD FOR WHICH EACH LIMITED WARRANTY IS GIVEN. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU. THE EXPRESSED WARRANTIES MADE IN THIS WARRANTY ARE EXCLUSIVE AND MAY NOT BE ALTERED, ENLARGED, OR CHANGED BY ANY DISTRIBUTOR, DEALER OR OTHER PERSON WHOMSOEVER.

### **SUBURBAN WILL NOT BE RESPONSIBLE FOR:**

1. Normal maintenance as outlined in the installation, operating and service instructions owner's manual including cleaning of component parts and cleaning or replacement of the burner orifice. Any water damage arising, directly or indirectly, from any defect in the water heater or component parts or from its use.
  2. Initial checkouts and subsequent checkouts which indicate the water heater is operating properly, or diagnosis without repair.
  3. Damage or repairs required as a consequence of faulty or incorrect installation or application not in conformance with Suburban instructions.
  4. Failure to start and/or operate due to loose or disconnected wires; water or dirt in controls, fuel lines and gas tanks; improper gas pressure; low voltage.
  5. Cleaning or adjustment of components; electrodes, burner tube, pilot and thermocouple.
  6. Costs incurred in gaining access to the water heater.
  7. Parts or accessories not supplied by Suburban.
  8. Freight charges incurred from parts replacements.
  9. Damage or repairs needed as a consequence of any misapplication, abuse, unreasonable use, unauthorized alteration, improper service, improper operation or failure to provide reasonable and necessary maintenance.
  10. Suburban products whose serial number has been altered, defaced or removed.
  11. Suburban products installed or warranty claims originating outside the Continental U.S.A., Alaska, Hawaii and Canada.
  12. Damage as a result of floods, winds, lightning, accidents, corrosive atmosphere or other conditions beyond the control of Suburban.
  13. ANY SPECIAL, INDIRECT OR CONSEQUENTIAL PROPERTY, ECONOMIC OR COMMERCIAL DAMAGE OF ANY NATURE WHATSOEVER. Some states do not allow the exclusion of incidental or consequential damages, so the above limitation may not apply to you.
- NO REPRESENTATIVE, DEALER OR OTHER PERSON IS AUTHORIZED TO ASSUME FOR SUBURBAN MANUFACTURING COMPANY ANY ADDITIONAL, DIFFERENT OR OTHER LIABILITY IN CONNECTION WITH THE SALE OF THIS SUBURBAN PRODUCT.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

### **IF YOU HAVE A PRODUCT PROBLEM**

#### **FIRST:**

If your RV has its original water heater and is still under the RV manufacturer's warranty, follow the steps described in your RV owner's manual.

#### **SECOND:**

Contact a conveniently located authorized Suburban Service Center. A list of such service centers is enclosed with Suburban's Installation, Operating and Service Instructions book. Describe to them the nature of your problem, make an appointment, if necessary, and provide for delivery of the water heater to the selected service center.

#### **THIRD:**

Contact: Suburban Manufacturing Company  
Customer Service Department  
Post Office Box 388  
Dayton, Tennessee 37321  
Telephone 423-775-2131