

**SolarCon solar water heater tank****NAS200 Series****Installation, commissioning and servicing instructions****Function**

The solar water heater is designed with an internal coil and backup electric heating element. A heating medium is passed through the solar panels and internal coil as long as there is an adequate temperature difference between the heating medium and stored water in the tank. The internal coil is located as close to the bottom as possible to facilitate the transfer of heat even at lower solar panel temperatures.

During periods of water flow through the water heater, hot water is drawn from the top of the heater and cold water is delivered to the bottom of the tank (by a dip tube or bottom inlet). If the hot water demand should exceed the solar heat input or there is an insufficient temperature difference between the heating medium and stored water, the heating element thermostat will activate the electrical heating element for backup heat or boiler backup top coil.

Solar heat output from the internal coil will vary depending on outside conditions and the temperature of the stored water.

**Models:**

- NAS20053 Tank 50 gallon with lower coil and back up electric element
- NAS20083 Tank 80 gallon with lower coil and back up electric element
- NAS20123 Tank 119 gallon with lower coil and back up electric element
- NAS20082 Tank 80 gallon with lower coil and top coil for boiler back up
- NAS20122 Tank 119 gallon with lower coil and top coil for boiler back up

**Technical characteristics**

Tank materials:	porcelain coated steel
Tank insulation:	2" non-CFC foam
Insulation thermal conductivity:	R14
Tank external cover:	powder-coated steel (20-24 ga.)
Anode rods:	2 each magnesium
Internal heat exchanger coil (lower):	1-1/2" x 30' (50 gallon)
Internal heat exchanger coil (top):	1-1/2" x 36' (80, 119 gallon)
Maximum working pressure:	1-1/2" x 24'
Testing pressure:	150 psi
Temperature and pressure relief valve	300 psi
Recommended maximum hot water temperature	210°F/150 psi max
	120°F
Power requirements:	240 VAC
Power consumption:	4.5KW
Agency approval	UL listed

## **▲ WARNING**

Improper installation, adjustment, alteration, service or maintenance can cause serious injury or property damage. Refer to this manual. For assistance or additional information, consult a qualified installer or service agency.

## **▲ CAUTION**

The recommended temperature for normal residential use is 120°F. The dial on the aquastat does not always reflect the out coming water temperature, which could occasionally exceed 120°F. The variation in out coming temperature could be based on factors including but not limited to usage patterns and type of installation. Test your water at the tap nearest to the water heater.

## **▲ WARNING**

Hotter water increases the risk of scald injury. Before adjusting the water temperature setting, read this instruction manual. Temperatures at which injury occurs vary with the person's age and the length of exposure.

The slower reaction time of children, elderly, and physically or mentally challenged persons increases the scalding hazard to them. It is recommended that lower water temperatures be used where these exposure hazards exist.

Such households may require a temperature setting less than 120°F to prevent accidental contact with hot water.

To lower water temperature use point-of-use temperature limiting devices.

## **▲ WARNING**

Water heater blankets are not recommended and will void the warranty.

**THIS MANUAL HAS BEEN PREPARED  
TO ACQUAINT YOU WITH THE  
INSTALLATION, OPERATION, AND  
MAINTENANCE OF  
YOUR WATER HEATER AND TO  
PROVIDE IMPORTANT SAFETY  
INFORMATION.**

## **▲ INSTALLER RESPONSIBILITIES**

Please read all instructions thoroughly before installing or placing the heater into service.

This unit must be installed by licensed or authorized installers, or technical personnel that service water heating equipment. The heater must be installed in accordance with all local codes and ordinances.

These instructions are a guide for the correct installation of the water heater. The manufacturer will not be liable for damages caused by failure to comply with the installation and operating instructions outlined on the following pages.

## **▲ CAUTION**

The recommended water temperature setting for normal residential use is 120°F/49°C.

## **▲ HANDLING**

Before uncrating, check for shipping damage. Report any damage to your carrier. Note damage on bill of lading or delivery receipt and file a claim.

**FAILURE TO FOLLOW THESE  
INSTRUCTIONS OR ALL APPLICABLE  
BUILDING CODES AND REGULATIONS  
VOIDS THE WARRANTY ON THIS  
WATER HEATER.**

Read all instructions thoroughly before attempting installation or operation of your water heater. Keep these instructions for future reference.

Local plumbing and electrical codes must be followed in the installation of this water heater. In the absence of a local code use the UNIFORM PLUMBING CODE and the NFPA Code. Local codes may supersede instructions in this installation manual. These instructions are a guide for the correct installation of the water heater. The manufacturer will not be liable for damages caused by failure to comply with the installation and operating instructions outlined on the following pages.

## **IMPORTANT SAFETY INSTRUCTIONS**

### **⚠ WARNING**

**When using electrical appliances, basic safety precautions to reduce the risk of fire, electric shock, or injury to persons should be followed, including:**

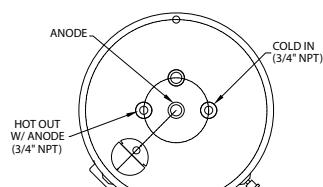
- 1. READ ALL INSTRUCTIONS BEFORE USING THIS WATER HEATER.**
- 2. This water heater must be grounded. Connect only to properly grounded outlet. See "GROUNDING INSTRUCTIONS" found on page 15.**
- 3. Install or locate this water heater only in accordance with the provided installation instructions.**
- 4. Use this water heater only for its intended use as described in this manual.**
- 5. Do not use an extension cord set with this water heater. If no receptacle is available adjacent to the water heater, contact a qualified electrician to have one properly installed.**
- 6. As with any appliance, close supervision is necessary when used by children.**
- 7. Do not operate this water heater if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.**
- 8. This water heater should be serviced only by qualified service personnel. Contact nearest authorized service facility for examination, repair, or adjustment.**

**SAVE THESE INSTRUCTIONS**

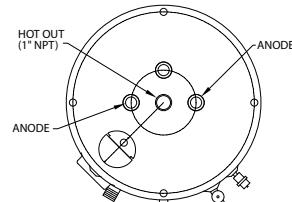
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## SECTION I: SPECIFICATIONS



NAS20053 TOP



NAS20083, NAS20123 TOP

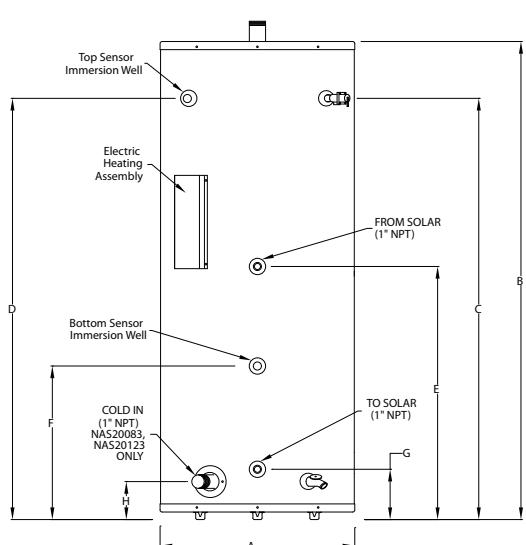
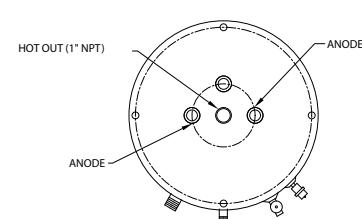


Figure 1: NAS20053, NAS20083, NAS20123

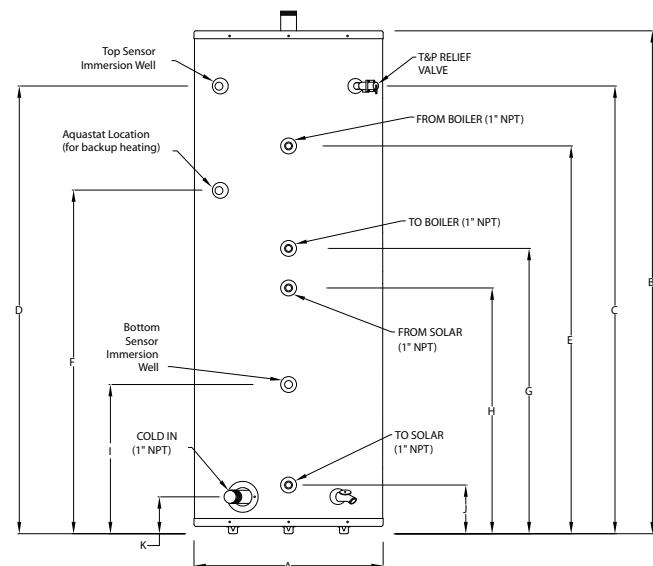


Figure 2: NAS20082, NAS20122

Table 1: Dimensions

Model	A	B	C	D	E	F	G	H	I	J	K
NAS20053	22"	48 1/4"	39 3/4"	39 3/4"	31 1/2"	16 3/4"	6 1/2"	n/a	n/a	n/a	n/a
NAS20083	24"	64"	57 1/8"	57 1/8"	31 1/2"	19 1/4"	6 1/2"	5"	n/a	n/a	n/a
NAS20123	28"	65"	57 3/4"	57 3/4"	33 3/4"	16 1/4"	8 3/4"	6 1/2"	n/a	n/a	n/a
NAS20082	24"	64"	57 1/8"	57 1/8"	49 1/2"	46 7/8"	36 1/2"	31 1/2"	19 1/4"	6 1/2"	5"
NAS20122	28"	65"	57 3/4"	57 3/4"	51 3/4"	49 1/8"	38 3/4"	33 3/4"	16 1/4"	8 3/4"	6 1/2"

Foam insulation standard. **Pressures, all:** Test pressure = 300 PSI; Working pressure = 150 PSI

Electrical rating (where applicable): 4.5KW, 240V

**WARNING:** Installation should be in accordance with all national and/or local codes.

**CAUTION:** The recommended water temperature setting for normal residential use is 120°F. Caleffi recommends a thermostatic mixing valve or scald protection valve be installed and used according to the manufacturer's directions to prevent scalding.

## SECTION I: SPECIFICATIONS (cont.)

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**Table 2:** Capacity & Performance

Model	Actual Tank Volume (gal)	Coil Volume Solar/Boiler (gal)	Coil Surface Area Solar/Boiler (ft <sup>2</sup> )	Coil Friction Loss* Solar/Boiler (ft of head)	First Hour Rating (gal)	Recovery Rate Solar & Backup <sup>#</sup> (gal/hr)	Standby Loss Rating (°F/hr)
NAS20053	45	2.30/ -	11.78/ -	0.50/-	91	51	1.1
NAS20083	75	2.76/ -	14.14/ -	0.60/-	126	56	0.8
NAS20123	110	2.76/ -	14.14/ -	0.60/-	158	56	1.2
NAS20082	73	2.76/1.84	14.14/9.42	0.60/0.40	226	158	0.8
NAS20122	108	2.76/1.84	14.14/9.42	0.60/0.40	258	158	1.2

**NOTES:**

\* Based on 5 GPM flow rate.

# Based on solar input of 140°F @ 2 GPM. Depending on model, backup heat recovery is calculated with either a 4500W heating element or a boiler with output of 180°F at 14 GPM. Potable water temperature rise is 77°F.

## SECTION II: GENERAL INFORMATION

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### WATER TREATMENT/FILTRATION

In areas where poor water conditions are suspected (i.e. lime, iron, and other minerals), it is essential that the water be tested and appropriate action taken to prevent damage to the indirect heater and ensure the quality of the water.

## SECTION II: GENERAL INFORMATION (cont.)

### TEMPERATURE CONTROL

The solar water heater is equipped with a backup electrical heating element and adjustable thermostat. The thermostat is located behind the access cover on the side of the water heater. If the solar system cannot satisfy the user demand, the electric element will energize and heat the water until the thermostat is satisfied. An ECO (electrical cut-off) is included as part of the temperature control and is designed to cut off power to the heating element in the event the water in the tank reaches 180°F. The ECO is a safety feature on the water heater and cannot be adjusted.

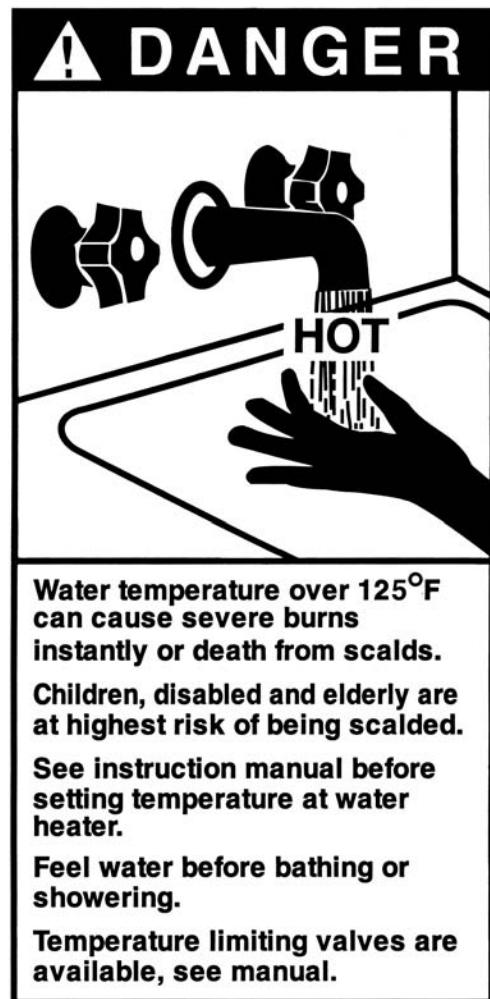
The thermostat is factory set at 120°F. See Table 6 for thermostat letter and temperature relationships. If hotter water is required a thermostatic mixing device or scald protection device must be installed at the domestic hot water outlet of the heater or at the point of use. Table 3 details the approximate relationship of water temperature and time with regard to scald injury. It is important for the user to understand the necessity of thermostatic mixing or scald protection devices when using hotter water in domestic water heating systems.

**▲ CAUTION: Hot water in excess of 120°F can cause scalding!**

**Caleffi recommends** a thermostatic mixing valve or scald protection valve be installed and used according to the manufacturer's directions to prevent scalding. Many state and local codes now require installation of these devices. The thermostatic mixing valve or scald protection valve will ensure potable water temperatures at the desired set point with a higher degree of accuracy.

**Table 3: Scald Temperature/Time Relationships**

APPROXIMATE TEMPERATURE/TIME RELATIONSHIPS TO SCALDING	
120°F	More than 5 minutes
125°F	1 ½ to 2 minutes
130°F	About 30 seconds
135°F	About 10 seconds
140°F	Less than 5 seconds
145°F	Less than 3 seconds
150°F	About 1 ½ seconds
155°F	About 1 second



## SECTION II: GENERAL INFORMATION (cont.)

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### ANODE RODS

The anode rod is used as a sacrificial element within the volume of the storage tank. The purpose of the magnesium anode rod is to protect the inside of the tank against corrosion. Anode rods should be inspected twice in the first year and at least yearly once a time interval for inspection has been developed. Water conditions can influence the consumption rate of the anode rods. Please see the Maintenance section of this manual for instructions on how to change the anode rods in your Caleffi water heater.

**⚠ CAUTION**

Hydrogen gas is produced in a hot water system served by the heater that has not been used for a long period of time (2 weeks or more). Hydrogen gas is extremely flammable. To reduce the risk of injury under these conditions, it is recommended that the hot water faucet be opened for several minutes at the kitchen sink before using any electrical appliance connected to the hot water system. When hydrogen is present, there will probably be an unusual sound such as air escaping through the pipe as the water begins to flow. There should be no smoking or open flame near the faucet at the time it is open.

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### TEMPERATURE AND PRESSURE RELIEF VALVE (T&P)

**⚠ CAUTION**

To reduce the risk of excessive pressures and temperatures in this water heater, install temperature and pressure protective equipment required by local codes and no less than a combination temperature and pressure relief valve certified by a nationally recognized testing laboratory that maintains periodic inspection of production of listed equipment or materials, as meeting the requirements for Relief Valves and Automatic Gas Shutoff Devices for Hot Water Supply Systems, ANSI Z21.22. This valve must be marked with a maximum set pressure not to exceed the marked maximum working pressure of the water heater. Install the valve in an opening provided and marked for this purpose in the water heater, and orient it or provide tubing so that any discharge from the valve exits only within 6 inches above, or at any distance below, the structural floor, and does not contact any live electrical part. The discharge opening must not be blocked or reduced in size under any circumstances.

The T&P valve is factory installed. A discharge drain tube must be installed (responsibility of the installer) and shall terminate plain, not threaded, 6 inches above the floor drain. The drain tube material must be approved for temperatures of 120°F or greater and a pressure of 150 PSI or greater.

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### BACKFLOW PREVENTER (CLOSED LOOP SYSTEM)

Some local municipal codes and ordinances require the use of these devices on potable (domestic) water lines. Where backflow preventers are required, it will be necessary to install a **thermal expansion tank** (designed for use with potable water) in order to prevent pressure build up in the indirect heater and associated piping, which could cause the T&P valve to discharge. Follow the expansion tank manufacturer's recommendations when selecting a tank for your hot water system.

**Note: Working pressure of the water heater is 150 PSI. Do not exceed 150 PSI.**

## SECTION III: PRE-INSTALLATION

### LOCATION

#### ⚠ CAUTION

This water heater must be located in an area where leakage of the tank, water line connections, or the temperature and pressure relief valve will not result in damage to the area adjacent to the water heater or to lower floors of the structure. When such location cannot be avoided, a suitable drain pan must be installed under the water heater. The drain pan depth must be suitable for draining and collecting water. The drain pan can be purchased from your plumbing professional. The drain pan must be piped to an adequate drain and all drain piping must be at least 0.75" in diameter and pitched for proper drainage.

#### ⚠ CAUTION

**DO NOT** store or use gasoline or other flammable, combustible, or corrosive vapors and/or liquids in the vicinity of the water heater or any other appliance.

**IF YOU SMELL GAS:**

- **DO NOT** try to light any appliance.
- **DO NOT** touch any electric switch; do not use any telephone in your building.
- Immediately call your gas supplier from a telephone in another building. Follow your gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

**DO NOT OPERATE THE APPLIANCE UNTIL THE LEAKAGE IS CORRECTED!**

#### ⚠ CAUTION

Do not drop water heater or lay heater down on its side. Move the water heater into position by sliding or using an appropriately sized hand truck.

The solar indirect water heater must be installed indoors. Locate the water heater as close as practical to the solar heating system and leave sufficient clearances for servicing the heater. The entire solar heating system should be located as close as possible to points of hot water use for the fastest delivery of hot water. This water heater may be installed on combustible flooring. **DO NOT** install this water heater on carpeting.

See Tables 4 and 5 for combustible and service clearances.

**Table 4:** Clearance from Combustible Materials

Top	Sides	Front	Rear
0"	0"	0"	0"

**Table 5:** Recommended Service Clearances

Top	Sides (non-piping)	Side (T&P Relief Valve)	Front	Rear
12"	4"	6"	16"	0"

## SECTION IV: INSTALLATION

### WATER CONNECTIONS

#### **⚠ CAUTION**

This water heater incorporates fittings that contain a nonmetallic lining. DO NOT apply heat to these fittings when making sweat connections to the heater. Sweat tubing to an adapter before securing adapter to any fittings on water heaters.

ALL PIPING SHOULD CONFORM TO LOCAL CODES AND ORDINANCES. It is highly recommended that unions and shut-off valves are installed at the potable water and heat exchanger connections to allow for isolation and/or movement during service. Installing a union on the potable outlet is of particular importance to facilitate replacement of the hot outlet/anode nipple on the 50 gallon model. In addition, all piping should be adequately insulated with an approved material to minimize heat loss.

### POTABLE WATER CONNECTIONS

**THE WATER HEATER MUST BE FILLED WITH WATER BEFORE CONNECTING ELECTRIC POWER.**

- 1) Close the main water supply valve before continuing with the installation. After the main water supply is shut-off, relieve the water line pressure by opening a faucet. Once the pressure has been relieved, close the faucet. The "Cold" and "Hot" potable water connections are labeled on the water heater. Install a union and shut-off valve at both potable water connections. All piping should be  $\frac{3}{4}$ " diameter new copper or larger. A thermostatic mixing valve or scald protection valve should be installed at the potable water outlet and used according to the manufacturer's specifications to prevent scalding.
- 2) If a backflow preventer is required in the cold water supply, a properly sized expansion tank must be installed to control thermal expansion. Do not operate the water heater in a closed system without installing a thermal expansion tank. Follow the expansion tank manufacturer's recommendations when selecting a tank for your system.
- 3) Following installation of the water lines, open the main water supply valve and fill the water heater. Open several hot water faucets to relieve air from the system. After water is flowing through the faucets and the system is void of air, close the faucets and check for water leaks in the system.

### SOLAR CONNECTIONS

#### **⚠ CAUTION**

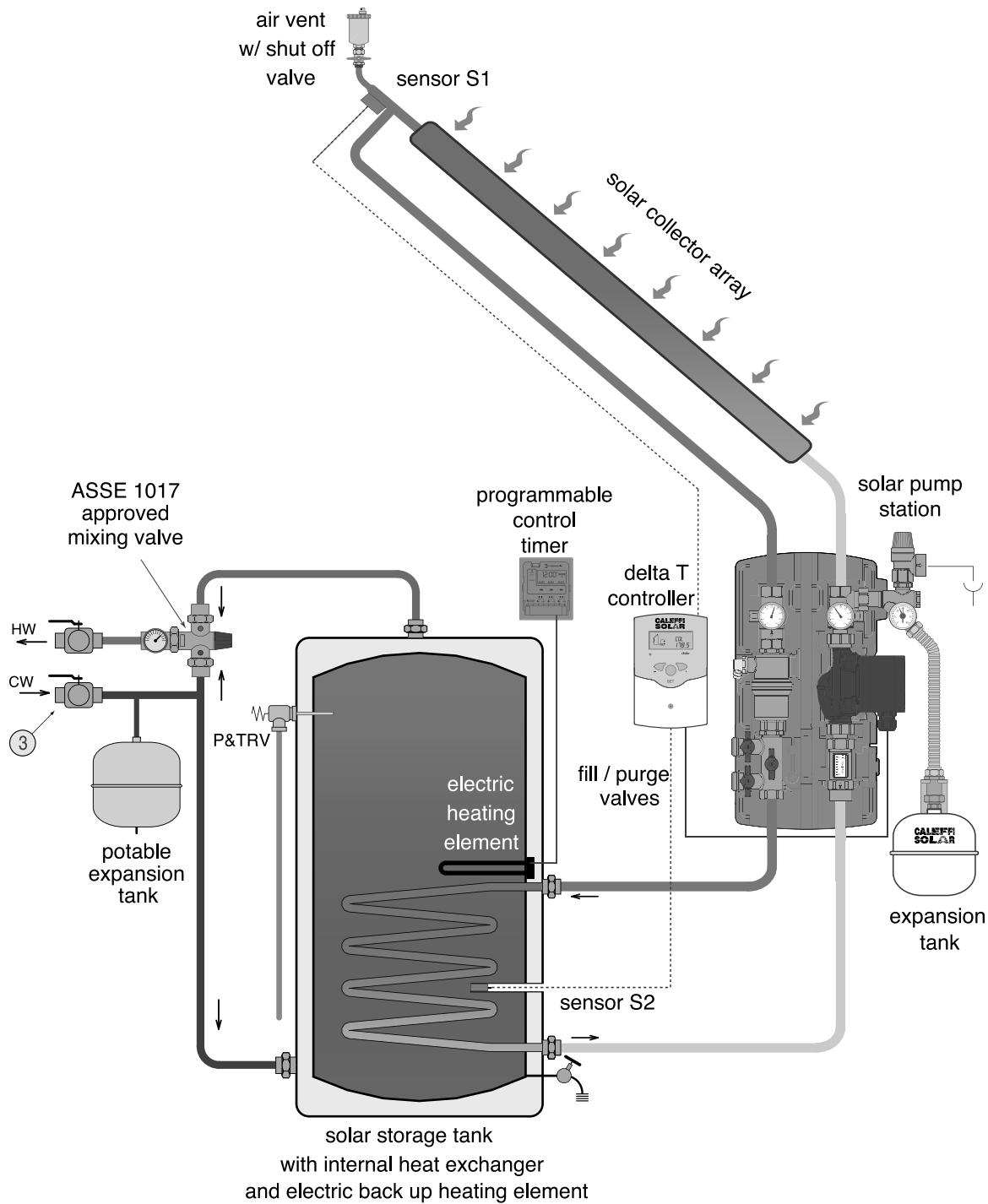
Temperature of the primary heat source medium (from solar collector or boiler) shall not exceed 200°F.

The outlet of the solar collector should be connected to the water heater at the "FROM SOLAR" fitting. The fitting labeled "TO SOLAR" should be connected to the solar return piping. It is recommended to install a union and shut-off valve at each solar connection. All pipe and fittings between the solar system and water heater should be  $\frac{3}{4}$ " diameter or larger.

## SECTION IV: INSTALLATION (cont.)

### PIPING DIAGRAMS

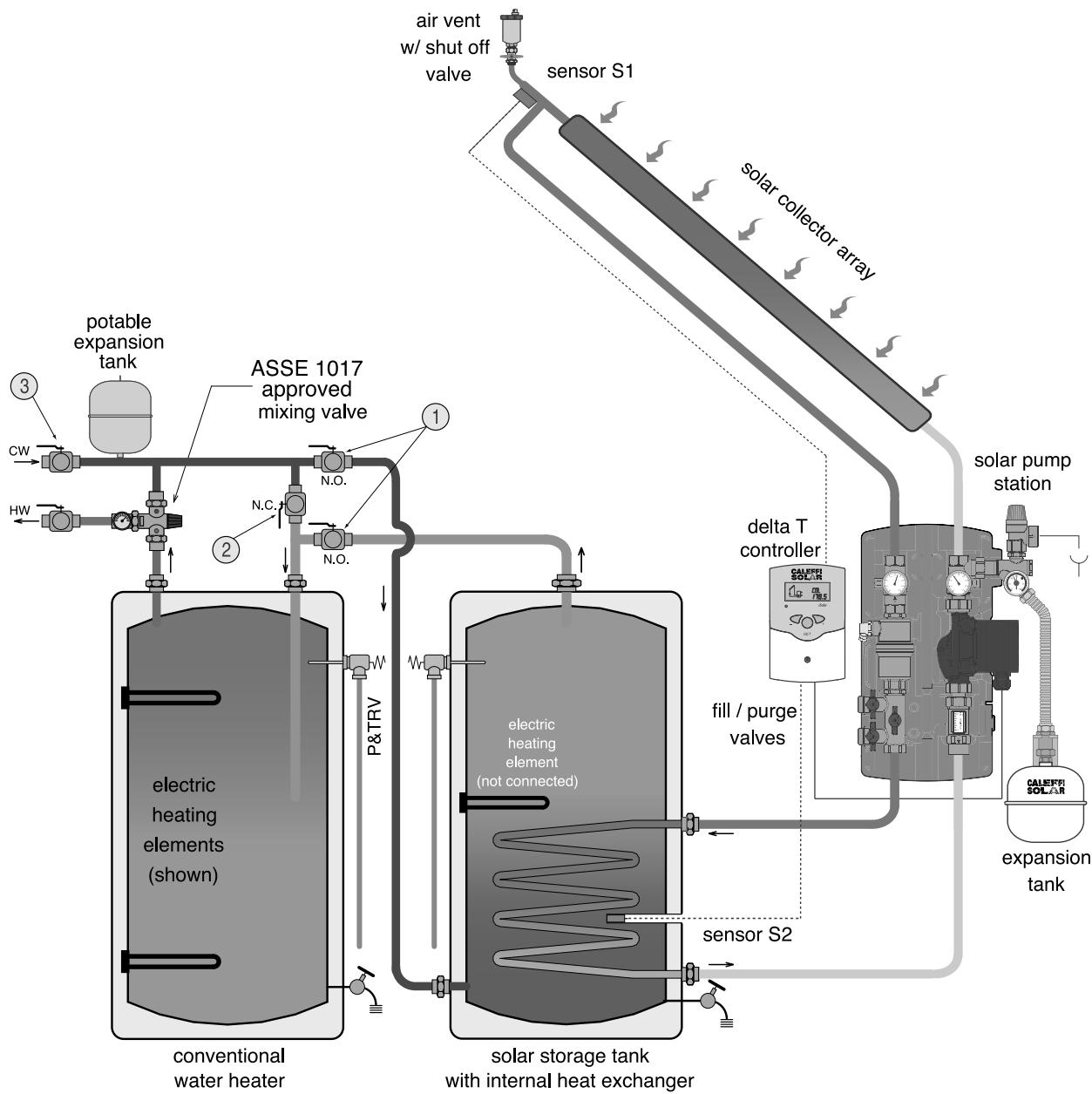
A piping diagram for a typical solar domestic water heating system based on an indirect water heater with electric heating backup is shown in Figure 3.



**Figure 3:** Single tank system with electric backup

## SECTION IV: INSTALLATION (cont.)

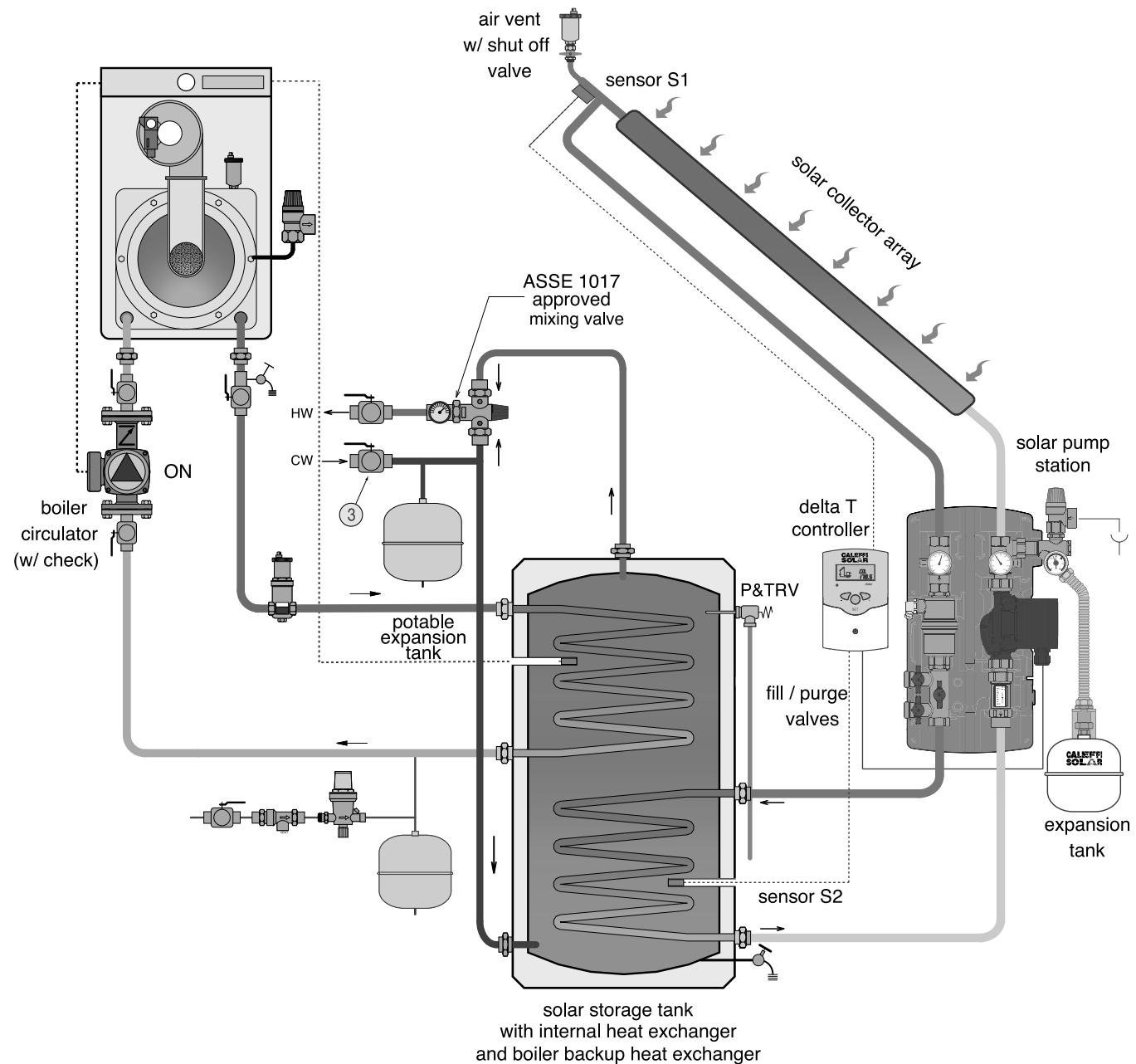
A typical two tank system is shown in Figure 4. The two tank system is mainly used where a conventional water heater is already installed.



**Figure 4:** Two tank system with existing heater

## SECTION IV: INSTALLATION (cont.)

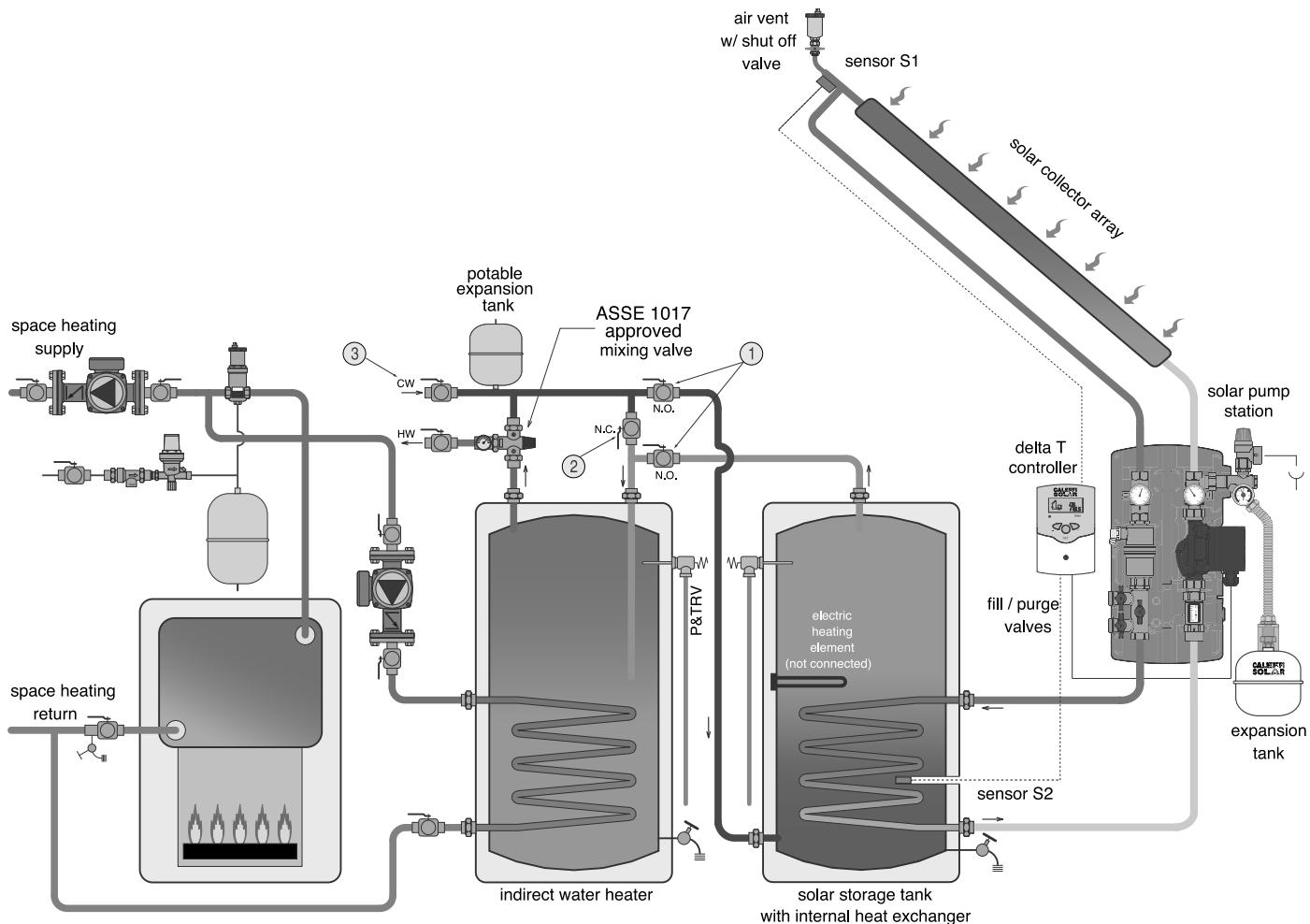
Figure 5 shows an example of a domestic solar heating system based on an indirect water heater with two coils. The domestic water can be heated by the solar system as well as the boiler.



**Figure 5:** Single tank system with boiler backup

## SECTION IV: INSTALLATION (cont.)

Figure 6 shows a two tank system based on an indirect water heater and a solar water heater with electric back up. The stored water in the indirect water heater acts as a preheat to the space heating loop.



**Figure 6:** Two tank with solar preheat to indirect boiler fired water heater

## **SECTION IV: INSTALLATION (cont.)**

## **ELECTRICAL CONNECTIONS**

**! DANGER**

Confirm that all electrical connections are unpowered before installing or servicing electrical components/connections within the water heater.

**! WARNING**

**The water heater must be electrically grounded in accordance with local codes or, in the absence of local codes, with NFPA 70.**

**Failure to properly wire electrical connections may result in serious physical harm.**

**Electrical power may be from more than one source. Make sure all power is off before attempting any electrical work.**

## **ELECTRIC HEATING ELEMENT (BACKUP)**

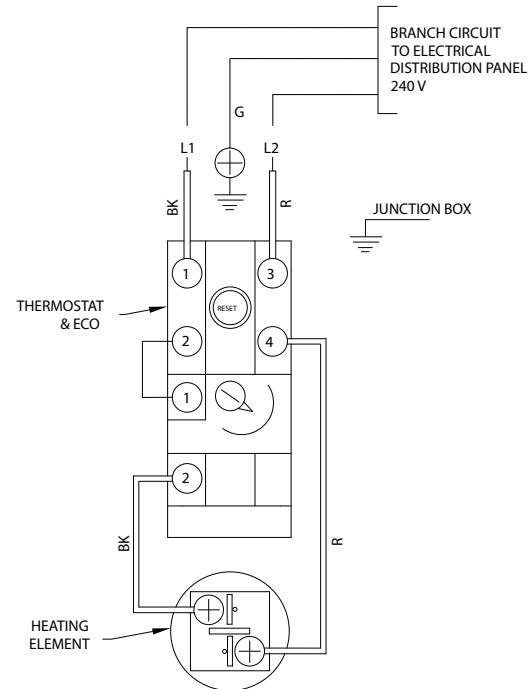
**THE WATER HEATER MUST BE FILLED  
WITH WATER BEFORE CONNECTING  
ELECTRIC POWER.**

All electrical connections on the water heater must be made with copper conductors only. A separate branch circuit with copper conductors, over-current protection, and means for disconnection must be provided by qualified service personnel. The total wattage load and voltage requirements for the water heater are specified on the rating label located on the front of the heater.

The thermostat and electric heating element are pre-wired at the factory. A junction box is located at the top of the water heater. The junction box cover will accommodate a  $\frac{1}{2}$ " or  $\frac{3}{4}$ " electrical conduit connector. Two wires are located in the junction box (red and black) for connection to the branch circuit. See Figure 7 for a wiring diagram.

## GROUNDING INSTRUCTIONS

A green screw (ground) is located in the junction box for proper connection to ground from the branch circuit.



**Figure 7:** Thermostat and Heating Element Wiring

## SECTION V: OPERATION

### ***THERMOSTAT TEMPERATURE ADJUSTMENT***

#### **⚠ CAUTION**

The temperature setting on the heating element thermostat shall not exceed 160°F. Likewise, the solar controller potable water temperature setting shall not exceed 160°F. Install a thermostatic mixing valve or scald protection mixing valve at the outlet of the water heater to ensure greater control over water temperatures at the point of use.

#### **⚠ CAUTION**

Turn off all power to the water heater before adjusting the heating element thermostat.

The heating element thermostat is factory adjusted to 120°F (“HOT” indicator setting). If thermostat adjustment is necessary, disconnect all power to the water heater and solar collector. Remove the access cover on the side of the water heater and remove the foam dam insert to expose the thermostat and heating element. The temperature knob can be adjusted with a screwdriver to a minimum temperature of 110°F and a maximum temperature of 160°F (labeled “VERY HOT”). See Table 6 for a listing of indicator setting and temperature relationships.

**Table 6: Thermostat Temperature Settings**

Indicator Setting	Temperature (°F)
• (min)	110
HOT	120
A	130
B	140
C	150
VERY HOT	160

#### **⚠ CAUTION**

Hot water in excess of 120°F can cause scalding! The temperature at which injury occurs varies with the person’s age and the time of exposure. The slower response time of disabled persons increases the hazards to them. NEVER allow small children to use a hot water tap. NEVER leave a child or disabled person unattended in a bathtub or shower.

Replace the foam dam insert and access cover after adjusting/inspecting the thermostat.

If the thermostat temperature setting (or scald protection mixing valve) was adjusted, check the water temperature at a faucet. Flow enough water through the faucet to ensure that the faucet temperature reflects the tank temperature. Adjust the thermostat or mixing valve setting as necessary. Adjusting the thermostat setting (lower or higher) will not immediately affect the water temperature at the faucet. Flow a sufficient amount of water or allow a heat-up cycle to complete before making further adjustments.

## **SECTION VI: MAINTENANCE**

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### **WATER PIPING**

On an annual basis, all piping should be checked for leakage at joints, shut-off valves, and unions.

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### **T&P RELIEF VALVE**

On an annual basis, the temperature and pressure relief valve should be checked for proper operation. First, attach a drain line to the valve to direct the water discharge to an open drain. This is very important because the temperature of the discharge could be very hot. Second, lift the lever at the end of the valve several times. The valve should operate freely and return to its original position properly. If water does not flow out of the valve, remove and inspect for corrosion or obstructions. Replace with a new valve if necessary. Do not repair the faulty valve as this may cause improper operation.

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### **ANODE RODS**

Anode rods should be inspected twice in the first year and at least yearly once a time interval for inspection has been developed. It is recommended to check the rod(s) six months after the heater is installed. If the anode rod had reduced in size by two-thirds of its original diameter of 3/4" or shows signs of pitting, it is time for replacement. Take the following steps when changing the anode rod(s):

1. Shut off water supply.
2. Open any faucet to relieve tank pressure.
3. Remove caps on water heater top; push insulation aside.
4. Use a 1 1/16" six-sided socket wrench and a breaker bar. Snap hard to break the anode rod seal.
5. Remove rod(s) and replace with new rod(s).
6. Turn water supply back on and leave faucet open until air is out of line.
7. Turn faucet off and check that new rod(s) doesn't leak.
8. Snap caps back into place.

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### **FLUSH THE TANK**

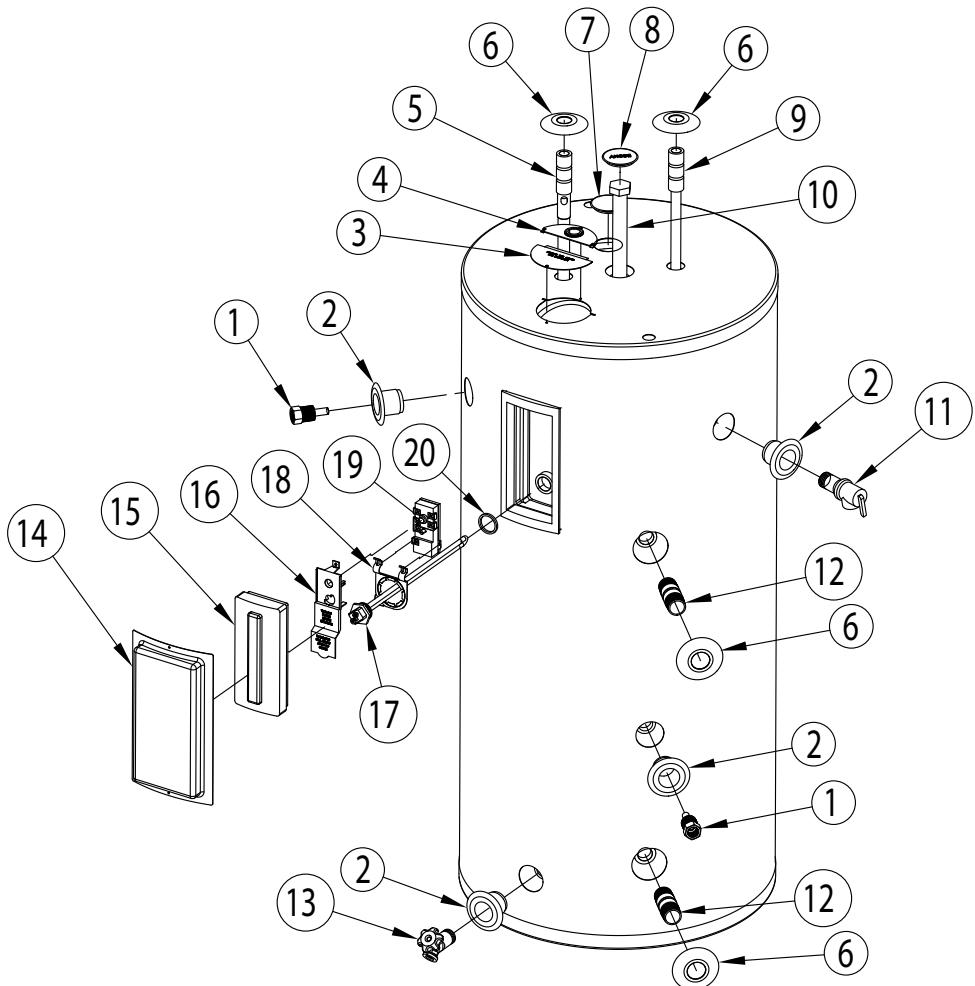
The solar indirect water heater is glass lined. Elements in the water such as lime, iron and other minerals may accumulate in the heater. It is recommended that the tank be drained and flushed thoroughly once a year to prevent buildup in the tank.

## SECTION VII: TROUBLESHOOTING

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PROBLEM	CAUSE	SOLUTION
No hot water at faucet	ECO on thermostat tripped	Determine cause of ECO trip (solar heat or electric element). Correct or replace as necessary. Reset thermostat (depress red button).
	Circulator does not operate	Check power supply
		Replace as necessary
		Check solar controller
	Improper thermostat setting	Turn thermostat to safe temperature setting
	Electrical problem (relay, wiring, etc.)	Check fuse and replace
Water at faucet too hot		Check circuit breaker and reset (if applicable)
	Scale build-up	Check power supply
		If boiler, circulator, and tank are operating satisfactorily, coil may have scale coating. See Section VI for tank flushing procedure.
Water at faucet too hot	Thermostat set too high	Lower thermostat setting to safe level
	Tempering valve not properly set or defective	Check manufacturers instructions
Insufficient hot water	Thermostat set too low	Raise thermostat setting to safe level. See Section V
	Undersized boiler with no priority to domestic hot water	Rewire for priority
	Undersized solar collectors	Calculate proper collector surface area, orientation, and available sunlight.
	Peak use of hot water is greater than tank storage capacity	Determine peak usage, compare to tank capacity, and add additional storage (storage tank) if necessary
	Faulty tank thermostat	Replace thermostat
Scale, hard white particles from faucets, popping sound from tank	Lime, water hardness above 7 grains-120ppm	Water treatment; softener; etc.
Rust staining; bad taste and odor in water	Iron/minerals in water supply	Filtration
Rotten egg odor	Hydrogen Sulfide	Flush tank with chlorine solution and install aluminum anode rod(s)
Air from hot water fixture	Electrolysis or air introduced by water supply	Properly ground heater & replace anode rod(s). Check well pump system.
Reduction in recovery	Dip tube broken or compromised by high chlorine in water	Replace dip tube
Inlet/Outlet fitting corrosion	Galvanic corrosion of dissimilar metals	Install dielectric unions
T&P Valve dripping water	Excessive water pressure (above 150 psi)	Check incoming water supply pressure; closed loop system requires expansion tank
T&P gushing water	Excessive water temp. (above 210 °F)	Adjust or replace thermostat and T&P valve

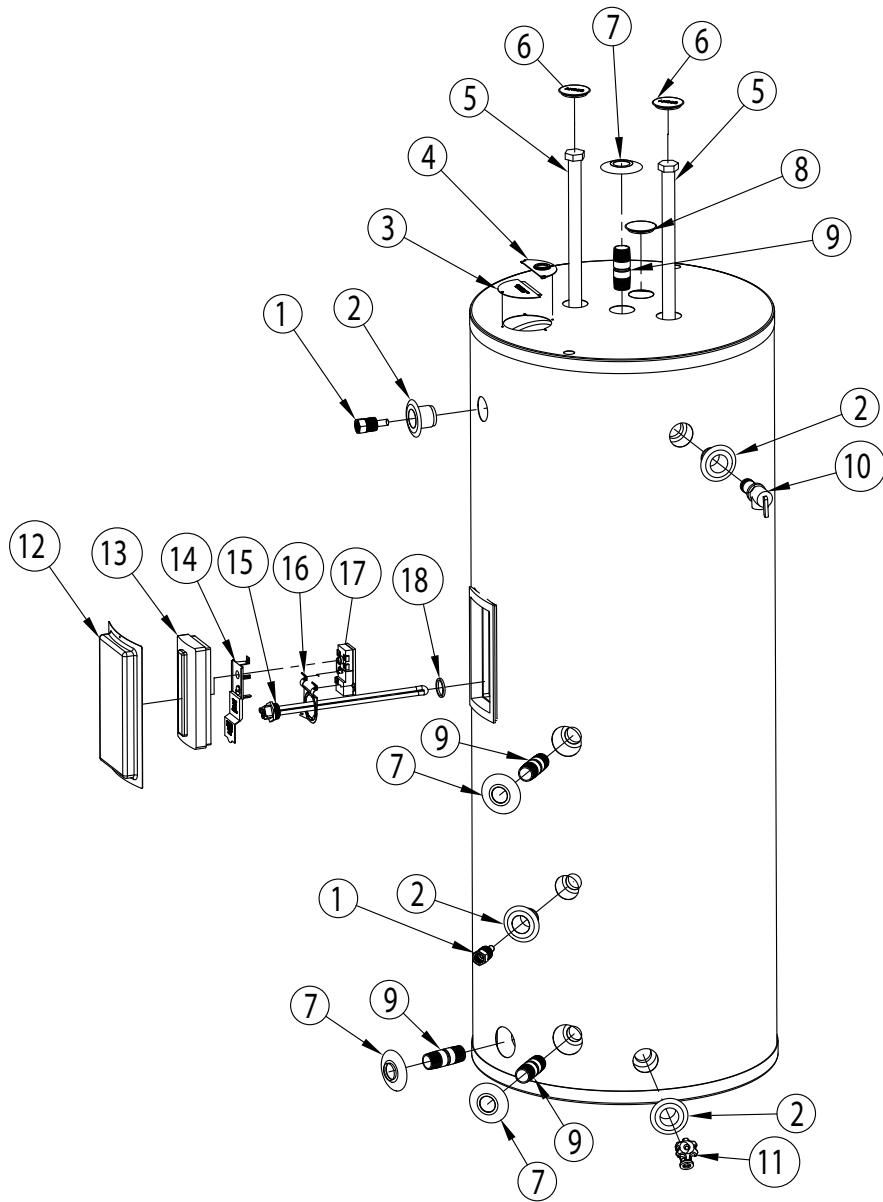
## SECTION VIII: PARTS LIST



**Table 7: NAS20053 Parts**

Part Description			
1	Immersion Well	11	T&P Relief Valve
2	Leak Detector	12	1" NPT x 3" Nipple
3	J-Box Cover	13	Drain Valve
4	J-Box Cover (w/ conduit hole)	14	Access Cover
5	Hot Outlet with Anode	15	Foam Dam Cover
6	Finish Ring	16	Thermostat Cover
7	Cap (blank)	17	Heating Element
8	Cap ("ANODE")	18	Thermostat Mounting Bracket
9	Cold Inlet with Diptube	19	Thermostat
10	Anode Rod	20	Heating Element Gasket

## SECTION VIII: PARTS LIST (cont.)



**Table 8: NAS20083 & NAS20123 Parts**

Part Description	
1	Immersion Well
2	Leak Detector
3	J-Box Cover
4	J-Box Cover (w/ conduit hole)
5	Anode Rod
6	Cap ("ANODE")
7	Finish Ring
8	Cap (blank)
9	1" NPT x 3" Nipple
10	T&P Relief Valve
11	Drain Valve
12	Access Cover
13	Foam Dam Cover
14	Thermostat Cover
15	Heating Element
16	Thermostat Mounting Bracket
17	Thermostat
18	Heating Element Gasket

## SECTION VIII: PARTS LIST (cont.)

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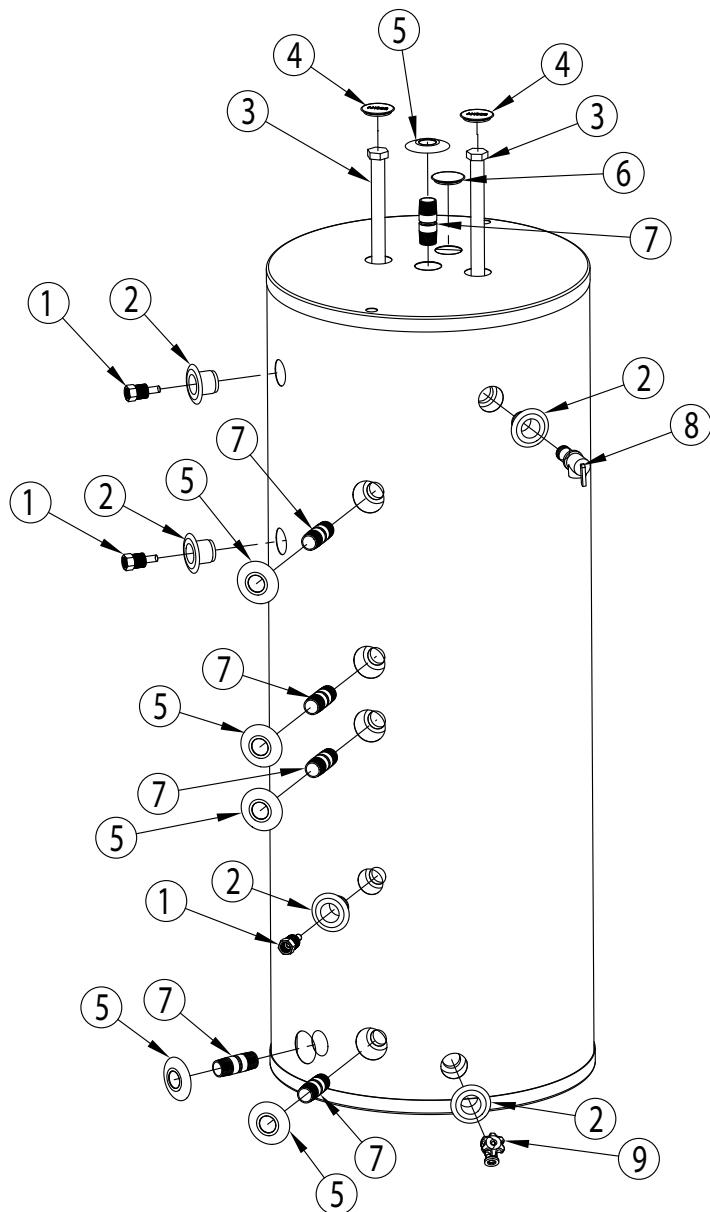


Table 9: NAS20082 & NAS20122 Parts

Part Description	
1	Immersion Well
2	Leak Detector
3	Anode Rod
4	Cap ("ANODE")
5	Finish Ring
6	Cap (blank)
7	1" NPT x 3" Nipple
8	T&P Relief Valve
9	Drain Valve

## **NOTES**

## **NOTES**



Caleffi North America, Inc.  
3883 W. Milwaukee Rd  
Milwaukee, WI 53208  
Tel: 414.238.2360 Tel: 414.238.2366