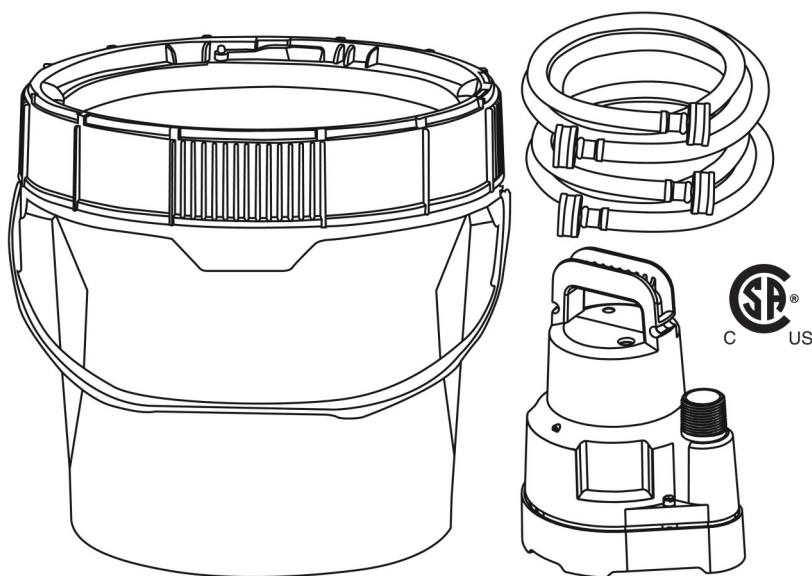




*Italian excellence since 1906*


# **INSTALLATION & OPERATION MANUAL TANKLESS WATER HEATER DESCALER PUMP KIT**

**Models:  
PAN91660**



## Pump Specific Safety Guidelines

Carefully read, understand and follow all safety instructions in this manual.

 This is the safety alert symbol. When you see this symbol, look for one of the following signal words.

**⚠ DANGER** Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

**⚠ CAUTION** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

**⚠ WARNING** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

## Safety Information

Read these warnings carefully. Know the application and limitations of this pump. Failure to follow these warnings could result in serious bodily injury and/or property damage.

**⚠ DANGER** RISK OF ELECTRICAL SHOCK. Disconnect and lockout power supply before removing old pump or installing or servicing this pump.

**⚠ DANGER** RISK OF ELECTRICAL SHOCK. This pump is supplied with a grounding conductor and grounding type attachment plug. To reduce the risk of electric shock, be certain that it is connected only to a properly grounded, grounding type receptacle. For added safety, it is highly recommended to connect this pump to a GFCI (Ground Fault Circuit Interrupter) outlet.

**⚠ WARNING** The installation of this pump must be in accordance with the National Electric Code (NEC), Uniform Plumbing Code (UPC), International Plumbing Code (IPC) as well as all applicable local codes and ordinances.

**⚠ CAUTION** Do not install this pump in any location classified as hazardous by the National Electrical Code, ANSI/NFPA70.

**⚠ CAUTION** Do not use this pump to pump flammable or explosive fluids such as gasoline, kerosene, etc. Do not use this pump in flammable or explosive environments. Use only with liquids compatible with pump component materials.

**⚠ WARNING** RISK OF ELECTRICAL SHOCK. This pump has not been investigated for use in swimming pool or marine areas.

**⚠ WARNING** RISK OF ELECTRICAL SHOCK. DO NOT use the power cord to install or carry the pump. Always use the handle. The cord may pull apart exposing bare wires which could cause a fire or electrical shock. Use the handle supplied with the pump for installing and transporting the pump.

**⚠ WARNING** Do not run pump dry. This pump relies on water for cooling. Running the pump dry can cause the pump to overheat and the possibility of burns to anyone that handles the pump. Running the pump dry will void the warranty.

**⚠ WARNING** Make certain that the electrical outlet is within the reach of the power supply cord. **DO NOT USE AN EXTENSION CORD.** Extension cords that are too long or too light do not deliver sufficient voltage to the pump motor. More importantly, they present a safety hazard if the insulation were to become damaged or the connection end were to fall into the water.

Pump Safety Information (continued)

- ⚠ CAUTION** This pump motor is equipped with an automatic resetting thermal protector and may restart unexpectedly.
- ⚠ WARNING** Do not use this pump for potable/drinking water. Use only in applications for which the pump is designed for.
- ⚠ WARNING** This pump is not intended to pump water softener discharge (brine) or condensate. Pumping these liquids could cause damage to the pump and will void the warranty.
- ⚠ WARNING** According to the state of California (Prop. 65), this product contains chemicals known to the state of California to cause cancer and birth defects or other reproductive harm.
- ⚠ WARNING** Keep hands clear of suction & discharge openings. To prevent injury, never insert fingers into pump while it is plugged in.
- ⚠ WARNING** Do not handle this pump with wet hands or while standing on wet or damp surfaces or in water.
- ⚠ NOTICE** This pump is not designed as a waterfall, pond or fountain pump. Use of this pump for waterfalls, ponds or fountains will void the warranty.

Pump Description

This non-automatic submersible utility pump is designed to remove water from, flooded basements, window wells and stock tanks, etc. The permanent split capacitor motor features an oil-free design. The pump comes equipped with a 3-prong grounding type power cord.

Pump Specifications

Model	PAN91660
HP	1/6
Volts	120 volt AC
Amps	2.7
Hz	60 Hz
Phase	1
Motor Duty	Continuous*
Circuit Requirements	15 Amp minimum
Discharge Size	1" MNPT & 3/4" GHT (with included adapter)
Max. Solids Handling	1/8" (3 mm) Spherical
Maximum Liquid Temperature	120°F (49°C)
Maximum Head**	22' (6,7 m)
Cord Length	8' (2,4m)
Pump Construction	Thermoplastic
Impeller	Thermoplastic
Shaft Seal	Lip seal

\*For continuous operation, the water depth must be at least 6”(15cm) to prevent the motor from overheating.

\*\*Using 1 diameter inch pipe

## Utility Pump Standard Installation

1. Place the pump on a solid, level surface in the water. If necessary, place bricks or patio blocks under the pump to raise it off the surface. Do not place the pump directly in mud, sand or silt or on rocky surfaces as these materials can clog or cause damage to the pump.
2. Connect a hose or pipe to the pump discharge. Use either the supplied garden hose adapter or other hose/pipe fitting (sold separately). Choose the best size hose or pipe for your application. **NOTE:** *To keep friction loss as low as possible, do not use a hose that is smaller than 1/2"*

## Utility Pump Standard Operation

1. Connect the plug into a 120 volt AC grounded outlet. The use of a GFCI is strongly recommended.
2. The pump will start pumping in approximately 1" of water and will drain down to approximately 1/4" of the surface.
3. Do not let the pump run dry. The pump depends on water for cooling and lubrication. Operating the pump without water may cause the motor to overheat or cause damage to internal pump parts. It may also shorten the life of your pump.
4. This pump is equipped with an anti-airlock hole. A stream of water will emit from this hole when the pump is operating. This is a normal feature of this pump. The anti-airlock hole should be cleaned periodically to prevent the pump from becoming air locked.
5. The pump motor is thermally protected. It is not recommended for pumping liquids over 120° F (49° C). The thermal overload protector will automatically shut down the pump in an overheat/overload situation. The pump will reset itself once the pump cools down. This overload is designed as a safety device and it will fail after repeated use. Normal operation is for fluids between 32° F & 120° F (0° C - 49° C).

## Pump Airlock

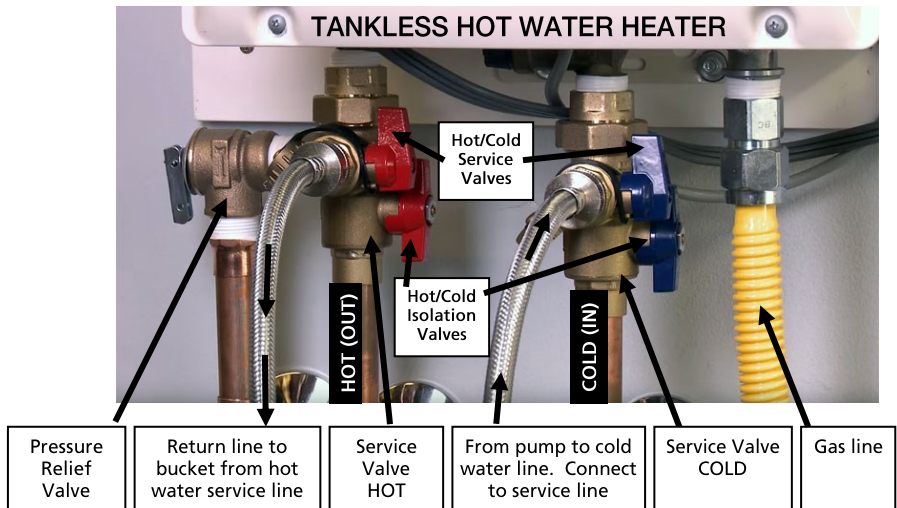
When a pump airlocks, it runs but does not move any water. An airlock will cause the pump to overheat and fail. This pump has an anti-airlock hole in the bottom of the pump housing. If you suspect an airlock, unplug the pump, clean out the anti-airlock hole with a paper clip or piece of wire, and restart the pump.

## Descaling Instructions

**NOTE:** If service valves have not been installed on your system, the water heater must be disconnected from the plumbing and drained. This descaler kit must then be connected directly to the cold and hot water connections.

1. Disconnect power to water heater. (Some heaters may require power.)
2. Close hot and cold isolation and service valves and remove service caps.
3. Add descaler powder to the pail and mix with one gallon of water.
4. Place the pail under the water heater and connect one hose to the pump and the other end of same hose to the cold service valve. Place the pump in the pail.
5. Connect the second hose to the hot service valve. Place the other end of the 2nd hose in the pail.
6. Open both hot and cold service valves.
7. Plug the pump into a grounded receptacle. Never allow pump to run without adequate liquid in the pail or damage to the pump will occur.
8. Allow the pump to circulate the descaler solution through the water heater for 30-60 minutes, depending on scale buildup. Unplug the pump when complete.
9. Close the cold service valve. Remove the hose from cold service valve, and replace the service cap.
10. Disconnect the hose from the pump and remove from the pail.
11. Flush the tankless water heater for 3-5 minutes (or until the water flows clear), by opening the cold isolation valve and allowing water to exit through the hot service valve hose. Direct the hose into a drain or drain directly into the pail, emptying periodically.
12. Close the hot service valve. Remove the hose from the service valve and replace the service cap. Open the hot isolation valve.
13. Re-connect the power to the water heater and return to service.
14. Rinse the pump with clear water to remove any remaining descaler solution.

## Typical Descaler Pump Application



### Service valve kit

If a tankless water heater does not have service valves installed, the piping will need to be removed in order to connect the decaler pump to the heater.

## Pump Maintenance

### **⚠ DANGER**

Risk of electric shock. Always disconnect the power supply before attempting to install, service or perform maintenance on the pump.

### **⚠ WARNING**

All repairs must be made by an authorized service center.

### **⚠ CAUTION**

Allow the pump to cool for 2-3 hours before servicing.

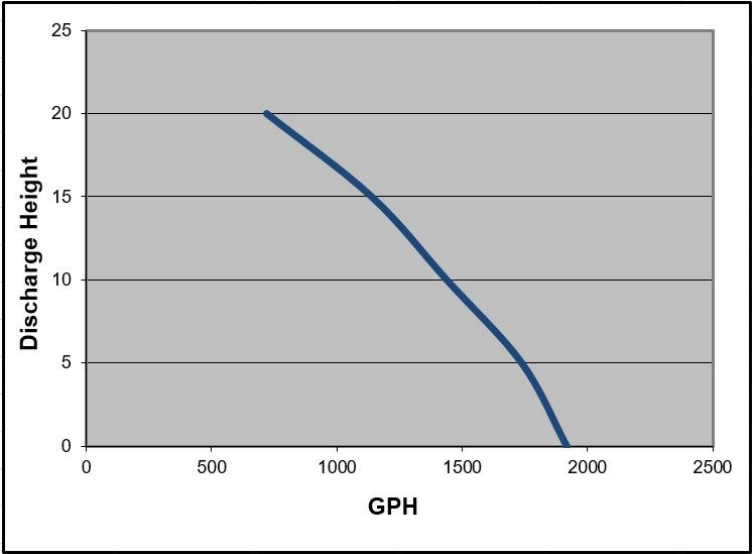
1. The pump motor is hermetically sealed in the housing and does not require any service. Disassembly of the motor housing or modification of the power cord voids the warranty.
2. Periodically check the intake for obstructions. Clean if necessary.
3. Inspect the impeller for signs of wear and obstructions.
4. Inspect the power cord for signs of damage or wear. Do not operate the pump if the cord is damaged or worn.

## Descaler Kit Maintenance

1. Clean pail using descaler solution and/or mild soap and water. Dry with a towel and/or leave out to dry.
2. Clean pail lid using descaler solution and/or mild soap and water. Dry with a towel and/or leave out to dry.
3. Clean hoses using descaler solution and/or mild soap and water. Dry with a towel and/or leave to dry.
4. Check rubber O-Rings located on the end of each hose. Replace if worn.
5. Check hoses for damage replace as needed.

**Pump Performances**

Height, pipe diameter restriction and hose length will reduce the pump output performance. It is recommended to use the same size or larger pipe / hose as the pump discharge for optimum performance. The performances listed below were obtained by using 1" pipe. The use of a garden hose will reduce the output depending on size and length of hose used. To keep friction as low as possible, hose must be 1/2" or larger. Use the shortest length of hose possible for your application.



Model	Discharge Height	0'	5'	10'	15'	20'	25'
PAN91660	Gallons Per Minute	32	29	24	19	12	0

# Troubleshooting

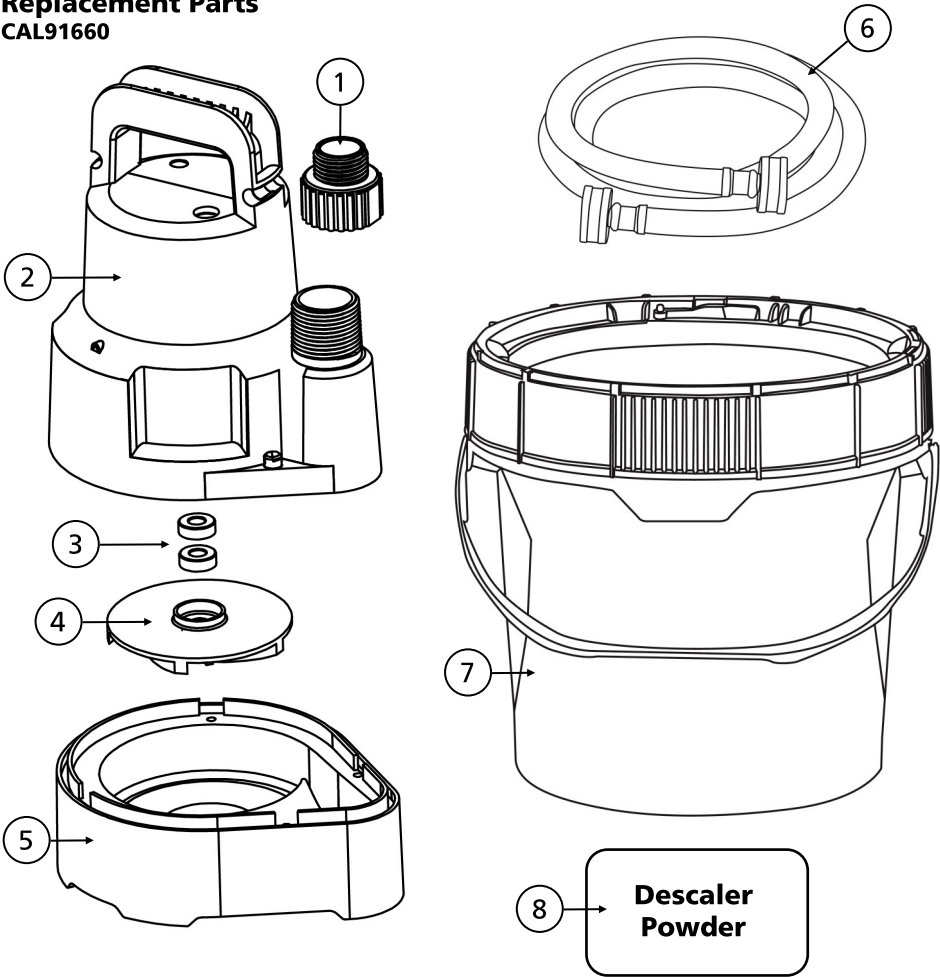


Risk of electric shock. Always disconnect the power supply before attempting to install, service or perform maintenance on the pump.

PROBLEM	POSSIBLE CAUSES	HOW TO CORRECT
If the pump does not start or run	Pump is not plugged in, switch or breaker is off	Plug pump in or turn on switch/breaker
	Check for blown fuses or tripped circuit breakers or tripped GFCI outlets	Replace fuse, reset breaker, reset GFCI outlet
	Motor thermal protector tripped	Allow pump to cool. Pump will automatically reset
If the pump runs but moves little or no water	Clogged intake screen	Clean screen
	Clogged discharge hose/pipe	Remove clog
	Impeller obstructed	Remove obstruction/debris
	Frozen discharge hose/pipe	Allow hose/pipe to thaw
	Pump is air locked	Clean out anti-airlock hole with a paper clip or pipe cleaner
	Low line voltage	Check wire size and increase if necessary
	Worn, damaged or clogged pump parts	Inspect for wear, damage or clog and clean or replace if necessary
	Discharge head exceeds pump capacity	<b>91016:</b> If pumping height is over 23', the pump will not move water. See performance chart
If when pump is hooked up to tankless water heater hose leaks	Worn O-rings on hoses	Replace Hose O-rings with standard hose O-Rings
	Damage has occurred to hose	Replace hose
Tankless water heater not fully cleaned	Dirty descaler solution	Discard descaler solution and replace with new descaler solution.
	Heater not flushed	See step 11 on page two of the manual for flushing instructions.



**Replacement Parts**  
**CAL91660**



Ref#	Description	PAN91660
1	GHT Adapter	99003
2	Motor*	n/a*
3	Shaft Seal	99058
4	Impeller	99079
5	Base	99142
6	Stainless Hose	99651
7	3.5 Pail With Screw Top Cover	99650
8	Descaler Powder	99653

\*If motor fails, replace entire pump

**For Parts or Assistance, please call 1-800-495-9278**

## This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**LIMITED WARRANTY:**

Manufacturer warrants the products specified in this warranty to be free from defects in material or workmanship for one (1) year from date of purchase. During the time period and subject to the terms and conditions, Manufacturer will repair or replace to the original user or consumer any portion of this product which proves to be defective due to materials or workmanship. At all times Manufacturer shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts, or components. Manufacturer has the option to inspect any product returned under warranty to confirm that the warranty applies before repair or replacement under warranty is approved. This warranty sets forth Manufacturer's sole obligation and purchaser's exclusive remedy for defective product. For warranty consideration, call 1-800-495-9278.

**WARRANTY PERIOD - PRODUCTS:**

If, within the duration of product use by the original user, this product proves to be defective due to materials or workmanship, the product shall be repaired or replaced at Manufacturer's option, subject to the terms and conditions set forth in this warranty statement. Proof of purchase is required for warranty consideration. In the absence of suitable proof of the purchase date, the effective period of this warranty is 12 months from the product's date of manufacture.

**LABOR, ETC. COSTS:**

Manufacturer shall IN NO EVENT be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or affixing any product, part, or component thereof.

**PRODUCT IMPROVEMENTS:**

Manufacturer reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and/or shipped prior to such change or improvement.

**GENERAL TERMS AND CONDITIONS:**

This warranty shall not apply to damage due to acts of God, normal wear and tear, normal maintenance services and the parts used in connection with such service, lightning or conditions beyond the control of Manufacturer, nor shall it apply to products which, in the sole judgment of Manufacturer, have been subject to negligence, abuse, accident, misapplication, tampering, alteration; nor due to improper installation, operation, maintenance or storage; nor to excess of recommended maximums as set forth in the instructions. Warranty will be VOID if any of the following conditions are found:

1. Product is used for purposes other than those for which it was designed and manufactured
2. Product not installed in accordance with applicable codes, ordinances, and good trade practices
3. Product connected to voltage other than indicated on nameplate or labels
4. Pump exposed to but not limited to the following: sand, gravel, cement, grease, plaster, mud, tar, oil, gasoline, solvents or other abrasive or corrosive substances
5. Pump has been used for pumping liquids above 120°F
6. Pump allowed to operate dry (liquid supply cut off)

**DISCLAIMER:**

Any oral statements about the product made by the seller, Manufacturer, the representatives, or any other parties do not constitute warranties, shall not be relied upon by the user, and are not part of the contract for sale. Seller's and Manufacturer's only obligation, and buyer's only remedy, shall be the replacement and/or repair by Manufacturer of the product as described above. NEITHER SELLER NOR MANUFACTURER SHALL BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE, DIRECT, INCIDENTAL OR CONSEQUENTIAL (INCLUDING, BUT NOT LIMITED TO, INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR LOST PROFITS, LOST SALES, INJURY TO PERSON OR PROPERTY, OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS), ARISING OUT OF THE USE OR THE INABILITY TO USE THE PRODUCT, AND THE USER AGREES THAT NO OTHER REMEDY SHALL BE AVAILABLE TO IT. Before using, the user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith.

THE WARRANTY AND REMEDY DESCRIBED IN THIS LIMITED WARRANTY IS AN EXCLUSIVE WARRANTY AND REMEDY AND IS IN LIEU OF ANY OTHER WARRANTY OR REMEDY, EXPRESSED OR IMPLIED, WHICH OTHER WARRANTIES AND REMEDIES ARE HEREBY EXPRESSLY EXCLUDED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, TO THE EXTENT EITHER APPLIES TO A PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIODS OF THE EXPRESSED WARRANTIES GIVEN ABOVE.

Some states and countries do not allow the exclusion or limitations on how long an implied warranty lasts or the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

