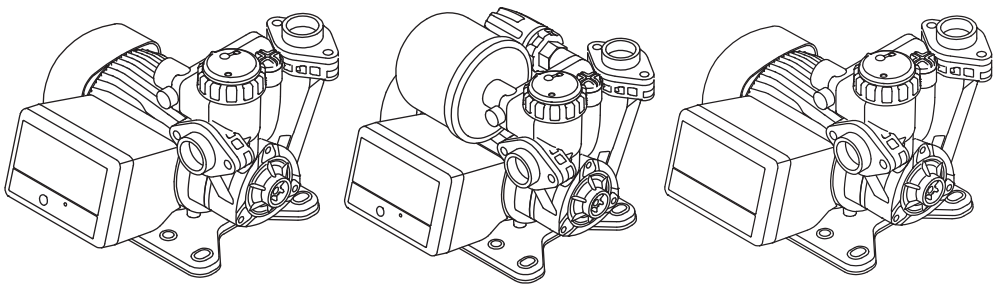
HAITIMA

Booster Pump Instruction Manual

HP/HPE/HPF/HPL



Safety First

These safety instructions provide a quick overview of precautions for working with this product. Read and follow these guidelines during handling, installation, operation, maintenance, service, and repair. This is a supplementary document; complete safety information is included in the installation and operating instructions. Keep this document at the installation site for future reference.

Product Warranty Statement

This product is warranted to the first user only to be free of defects in material and workmanship for a period of 24 months from the date of installation, or 30 months from the date of manufacture, whichever occurs first. Our liability under this warranty shall be limited to repairing or replacing, at our option, without charge, F.O.B. (freight on board) our factory or authorized service agent. We will not be liable for any cost of removal, installation, transportation, or any other charges that may arise in connection with a warranty claim. Proof of purchase and installation date, failure date, serial numbers, and supporting installation data must be provided while claiming repairs under warranty. This warranty is subject to due compliance by the original purchaser with the directions and conditions written in this document. Failure to comply with these instructions to cause any damages by abnormal wear and tear, negligence, misuse, incorrect installation, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive liquid, lightning or high voltage spikes or through unauthorized persons attempting repairs are not covered under warranty. There are no express or implied warranties, including merchantability or fitness for a particular purpose, which extend beyond those warranties described or referred to above. Certain countries do not permit the exclusion or limitation of incidental or consequential damages or the placing of limitations on the duration of an implied warranty, therefore, the limitations or exclusions herein may not apply. This warranty sets forth specific legal rights and obligations, however, additional rights may exist, which may vary from country to country.

1.Product Description

The HP/HPE/HPF/HPL pump models are integrated, self-priming, and compactly designed. It's quiet and easy to install.

The pump is precisely controlled by the all-in-one electronic smart controller to maintain the constant water boosting. The plastic pump chamber and certified low-lead peripheral impeller ensure the safety of water hygiene quality.

All models have the dry run, motor temperature, and overheat protections, which can efficiently protect the motor from the abnormal conditions.

Applications: Housing and light commercial water boosting, automatic booster system, drinking water system, and water supply from shallow wells (<8 m).

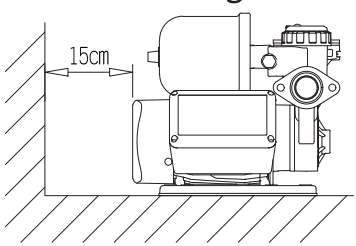
2.Operating Condition :

Ambient temperature: 0 ~ 40°C
Liquid temperature: +2°C ~ 45°C
Liquid: Water without particle
Liquid pH: 4 ~ 9
Relative humidity: Max. 85% (RH)
Insulation class: F
Enclosure class: IP 54
Noise level: < 48 dB
System Pressure: Max. 5 kg/cm² (200W-400W models). Max. 7 kg/cm² (600W and 800W models)

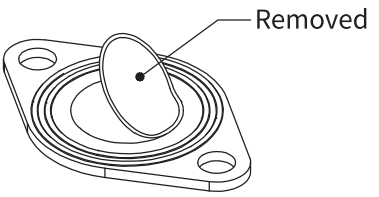
3. Installation instructions

① The pump installation and piping shall be done by the eligible technician. Please comply with the national electrical regulations for power connection.

② The installation location must be well-ventilated and the motor fan cover must be at least 15 cm range from the wall to have a well cooling.



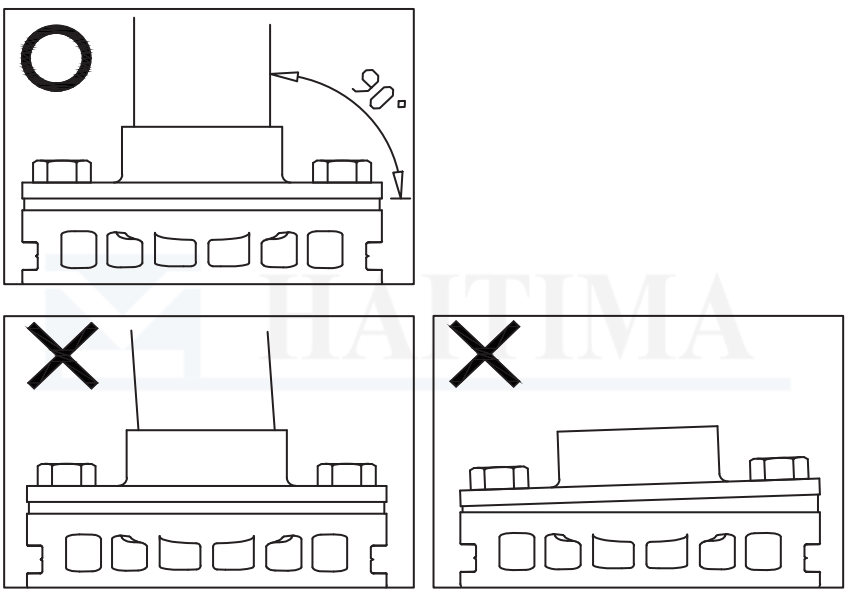
③ The installation location should have good drainage to avoid damage caused by flood. When installing it at outdoors, it is recommended to install a rain cover that does not affect the cooling.
④ To avoid water leakage to damage your properties, please do not install the pump on the ceiling, carpet, or anywhere near electrical appliances, and do not install it in a confined space.
⑤ When the pump supplies water to the water heater, to prevent backflow of high-temperature steam and hot water from the heater, please install a non-return valve or a thermal expansional tank between pump and heater.
⑥ Please remove the rubber form after installation.



⑦ To ensure smooth operation, please use bolts to securely fix the pump on a strong base. Please ensure that it is level with the ground which can effectively absorb the vibration from the motor.
⑧ Please follow the national electrical code for wiring. To ensure safety, please install a fuse breaker, a residual current device, and, grounding the wire.
⑨ The pump should be installed as close to the water source as possible. Too many elbows and too long pipes in the inlet and outlet will reduce efficiency.
⑩ Although the HP models have voltage protection function, please check the voltage before operation.
⑪ When installing the pipe, do not let any solid particles fall into the pump from the outlet. The particle may cause damage to the impeller and pump.
⑫ There is a built-in check valve. It is recommended not to install a foot valve on the inlet pipe to reduce water consume efficiency.
⑬ The HP/HPE/HPF series pump will automatically run for 5 seconds every 24 hours to ensure that the shaft seal will not stuck together.
⑭ When the voltage is abnormally high or low, the HP series will automatically stop to protect the motor. After 2 minutes, if the voltage returns to normal, the pump will automatically resume operation.

⑮ HPL has dry run shutdown protection. When there is no water coming from water source, please turn it off to avoid any damage.

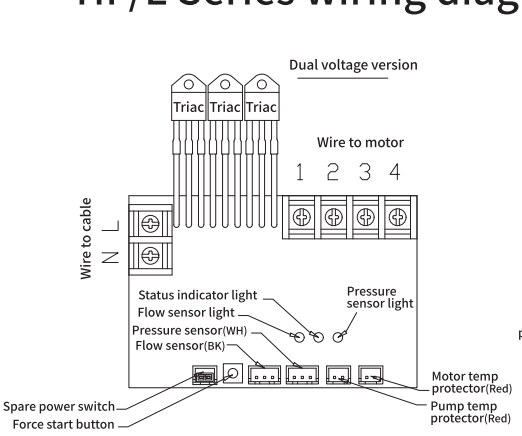
⑯ When installing the pipe, please pay attention to the followings: the flange assembly must be correctly and evenly to the pipe. When screwing the flange, please tighten them evenly on both sides. Do not overtighten to break the pump body.

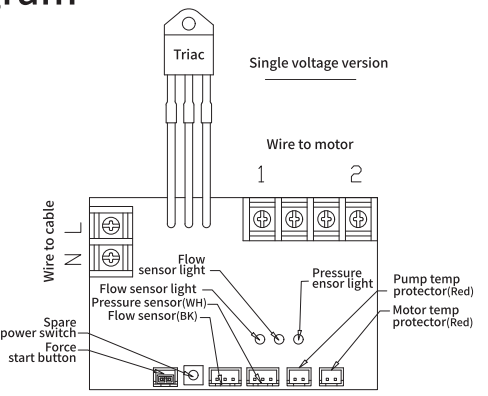


⑰ Do not have the pump dried run. The impeller and mechanical seal are designed for water lubrication. Running the pump without water will damage pump seriously.

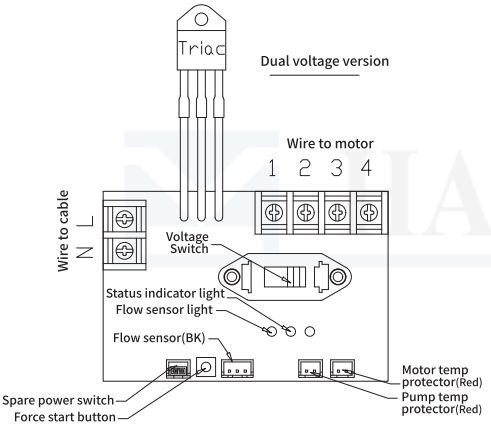
⑱ The 60HZ models of the HPE/HPF/HPL series have a manual 110/220V voltage switch integrated on the control board. Please open the terminal cover to operate. Before connecting to the power, please make sure that the supplied voltage matches the pump setting.

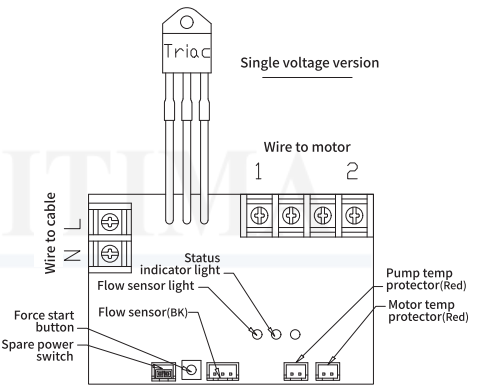
HP/E Series wiring diagram



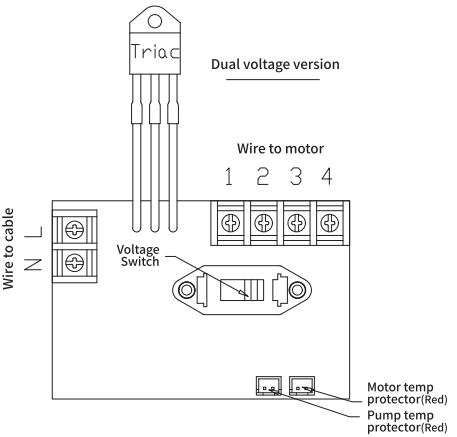


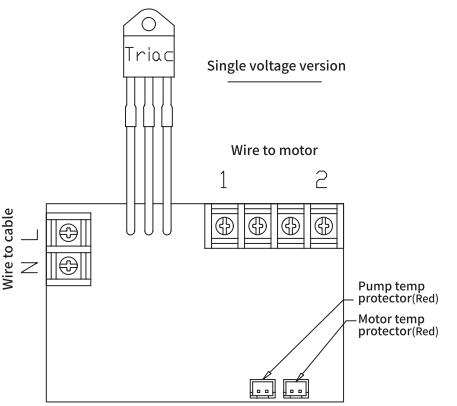
HPF Series wiring diagram





HPL Series wiring diagram





⑲ Please do not remove the screen from the inlet flange gasket. Please clean the screen regularly to avoid clogging and maintain the pump performance.

⑳ HP/HPE/HPF/HPL function table:

Function/Model	HP	HPE	HPF	HPL
Flow detection start	✓	✓	✓	✗
Pressure detection start	✓	✓	✗	✗
Dry run protection	✓	✓	✓	✓
Dry run recovery (Note 1)	AUTO/MANUAL	AUTO/MANUAL	AUTO/MANUAL	✗
Abnormal voltage protection	✓	✗	✗	✗
Motor Temperature protection	✓	✓	✓	✓
Overheat protection	✓	✓	✓	✓
24H Auto operation (Note 2)	✓	✓	✓	✗
Dual voltage switching (Note 3)	AUTO	MANUAL	MANUAL	MANUAL
Status indicator light	✓	✓	✓	✗
Soft stop function (Note 4)	✓	✓	✓	✗
Water suction function	✓	✓	✓	✓
Water hammer protection(Note 5)	✓	✓	✗	✗
Flow sensor signal light	✓	✓	✓	✗
Pressure sensor signal light	✓	✓	✗	✗
Forced start button	✓	✓	✓	✗
Built-in check valve	✓	✓	✓	✓

Note 1: Pump shutdown while detecting no water supply, the HP/HPE /HPF series automatically detect the recovery of the water source to resume the operation. Or, press the forced start button to resume the operation, when the water source has sufficient water pressure or flow. The HPL' s overheat protect will resume to work after it cools down.

Note 2: If the pump does not operate for a long time, the shaft seal will stick together. Pump automatically runs once every 24 hours to prevent the sticking and extend the pump life time.

Note 3: The dual voltage function is only available in 60Hz models.

Note 4: The motor will last 5 seconds till stop after turn off the faucet to reduce operation cycle to prolong the product life time.

Note 5: The HP/HPE series are equipped with a pressure tank, which can absorb part of the water hammer once the motor stops.

㉑ **Please grounding the product with its grounding wire to prevent the electric shock. The power configuration should be implemented in accordance with the national electrical code regulations. It is recommended to install a breaker to prevent electrical shock caused by humidity or leakage.**

㉒ **When connecting the inlet pipe, check for any leaks. If there is a leak in the inlet pipe, it will affect the self-priming function. The inlet pipe must be horizontal or slightly tilted upward to avoid air entering to cause air block.**

㉓ **Using the hose for piping, please make sure to use a non-collapsible hose which can avoid bending or flattening, as this will cause water flow problems and affect the performance and efficiency.**

㉔ **The outlet pipe diameter should not be smaller than the inlet diameter. It should be at least the same size as the inlet diameter. The elbow connection should not be too close to the pump inlet and outlet. The fewer elbow connection the better.**

㉕ **It is recommended to install the pipes against the wall and fix them securely. This will prevent the pipes from knocking when the pump on and off. It is not recommended to install the pipes in the air which causes more vibration from the motor and more noise. The vibration causes the material to deteriorate and break prematurely.**

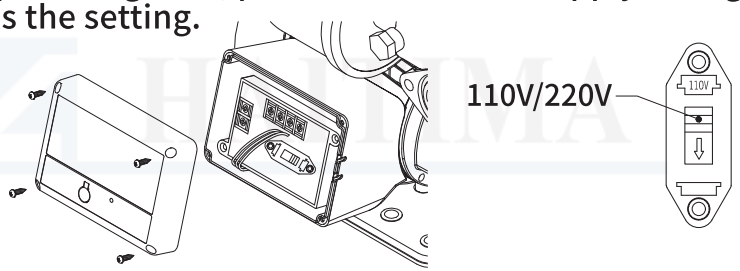
㉖ When configuring the pipeline, horizontal pipelines should be done as horizontally as possible during the installation. The inclined pipelines should be avoided as much as possible, otherwise serious air blockage may occur when air is in the system due to insufficient water supply.

4.The dual voltage Switching Instructions

(60hz models only)

① HP series: The pump will automatically detect the supply voltage and switch accordingly. Before power it on, please confirm the supply voltage is within the operating voltage range.

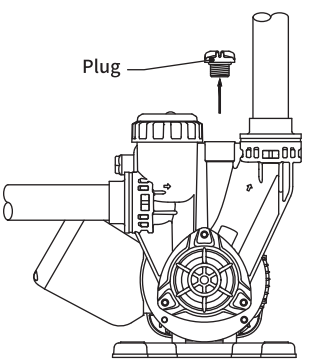
② HPE/HPF/HPL series: To switch the different voltage, open the terminal cover and adjust the voltage switch. Before powering it on, please confirm the supply voltage matches the setting.



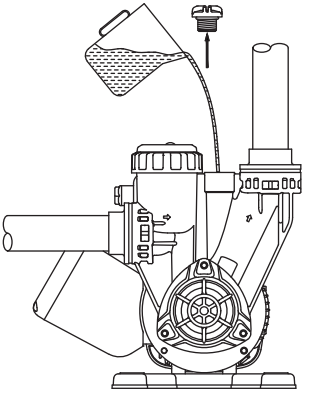
3. Installation instructions

After the installation, please follow the following steps to fill up the pump with water before powering. Please note that the pump is strictly prohibited from dry running.

① When the water source has sufficient pressure, please unscrew the priming plug and let the water flow into the pump chamber till full, and then screw it on.



② When the water source’ s pressure is insufficient, please unscrew the priming plug and fill up the pump chamber with water, then, screw it on.



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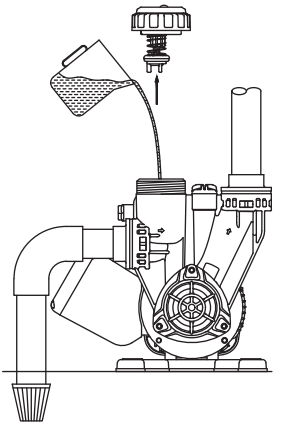
③ When used of the suction lift, filling the inlet pipe and pump with water to reduce lifting time. Please install a foot valve; and, please remove the check valve to filling up the water and assemble it back once it has do



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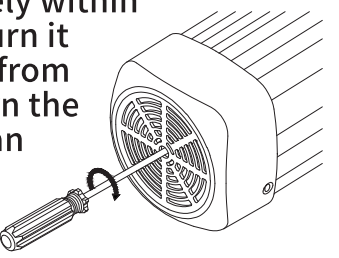
④ If the pump does not start immediately within 5 seconds once power it on, please turn it off and insert a flathead screwdriver from the center of the motor cover and turn the fan clockwise to make sure the fan can rotate freely.
After that, power it on again.



⑤ After power it on while turn on the faucet, the pump should start within 5 seconds. If the pump does not start after confirming that the fan can rotate freely, please follow the troubleshooting instructions.

⑥ If HP model does not draw the water from the water source within 8 minutes of the first power-on, the pump will automatically shutdown and go to the protection mode. Please confirm that the water in the pump chamber is full. If it is not full, it will cause insufficient self-priming ability. If the pump chamber is full and the water source is sufficient, please press the forced start button to draw the water the pump.

⑦ If the water source is sufficient and the pump chamber is full with water, and the operation is normal, but there is still no water when turn on the faucet, please check if there is any leakage or air blockage in the pipeline.

⑧ The HPF series is a flow-controlled. Before installation, please confirm that the water tank' s water level is above 50 cm of the pump or the inlet pressure is at least 0.1 kg/cm2/ to avoid the insufficient water pressure to start.

⑨ After normal operation, please turn on and off the faucet several times to remove the remaining air from the pump chamber and pipeline, and check whether the start and stop of the pump are normal. If there is any abnormality, please follow the troubleshooting instructions.

⑩ If the air is still coming out of the faucet after operation, please check the inlet pipe for any leaks that may be causing air to be sucked in.

⑪ If the pump is frequently stop and start once turn off the faucet, please check the outlet pipeline for leakage.

⑫ If there is a water hammer noise when turn off the faucet, please check if the pipeline is properly secured. If the water hammer occurs in indoors, it is recommended to install a water hammer arrester at the end of the pipeline.

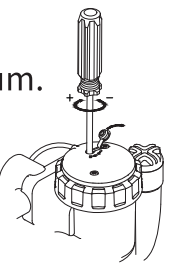
⑬ Please solve this problem to ensure safety. When it is operating normally, please check the operating current of the pump. If the current value is too high compared with the nameplate, please check whether the supplied voltage meets the pump setting.

6.Flow and pressure switches Adjustment Steps:

This product is best setting in factory. It is recommended that you do not adjust it, otherwise it may cause the pump to non-stop or abnormal operation. If the setting value needs to be adjusted due to the environment or application conditions, please follow the below instructions. However, if the product is damaged due to the adjustment, it will not be covered by the warranty.

① Flow sensor adjustments:

A. Remove the push-in rubber bumper.
B. Use a Philips screwdriver to turn it clockwise to increase the starting flow rate and counterclockwise to decrease the starting flow rate.
C. Do not over-adjust to the maximum or minimum. The over-adjustment may cause the pump to start poorly or non-stop operation, and may damage the flow sensor.



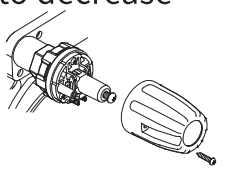
② Pressure sensor adjustment

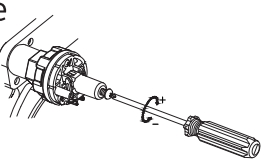
A. Use a Phillips screwdriver to remove the screws.

B. Remove the protective cover.

C. Use a Phillips screwdriver to adjust the screw in the central. Turning clockwise is to increase the starting pressure, and turning counterclockwise is to decrease the starting pressure.

D. Do not over-adjust to the highest or lowest settings. The over-adjustment may cause the pump to start poorly or run continuously, and may also damage the sensor.





7.Basic Components Replacement

Before replacing the components, please turn off the power and remove the pump, and, drain the water from the chamber to ensure the safety during the following operations.

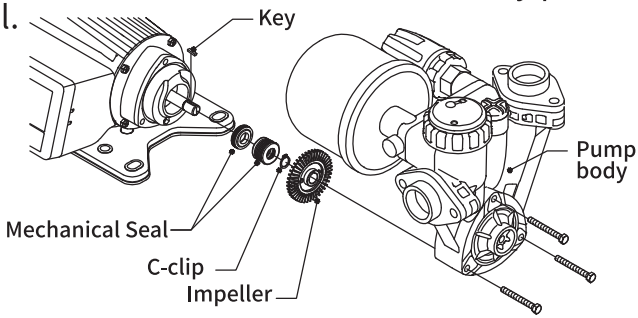
① Replacing the impeller and shaft seal

A. Use a wrench to remove the screws from the pump chamber and take off the pump chamber (please do not pull the cable forcefully).

B. If the impeller and key cannot be removed directly, use a rubber hammer to hammer the end of the shaft lightly or a plier to remove them.

C. Use a pliers to remove the C-clip, then remove the rotating part of the mechanical seal.

D.Use a slotted screwdriver to remove the stationary part of the shaft seal.



E.Press the stationary part of the shaft seal firmly into the pump head.

F.Press the rotating part of the shaft seal in.

G.Install the C-clip into the groove on the shaft.

H.Install the key and impeller, and finally assemble the pump chamber.

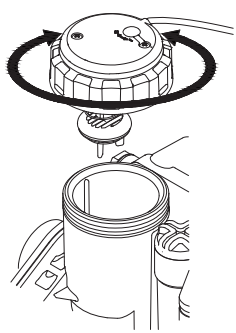
② Replacing the impeller and shaft seal

A.Remove the terminal cover and unplug the flow sensor signal wire.

B.Turn the flow sensor retainer ring counterclockwise and remove the it.

C.Install a new flow sensor and screw the retainer ring clockwise.

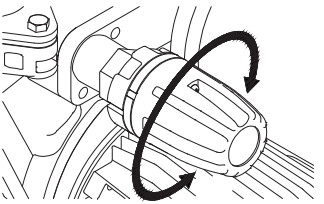
D.Plug in the flow sensor signal wire and install the plastic cover.



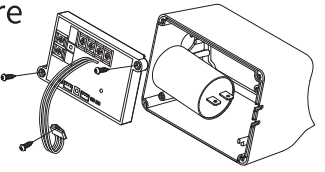
③ Replacing the pressure sensor:

A.Remove the terminal cover and unplug the pressure sensor signal wire.
B.Turn the pressure sensor counterclockwise and remove it.
C.Install a new pressure sensor and screw it clockwise.
D.Plug in the flow control signal wire and screw back the terminal cover.

④ Replacing the Control Board and Capacitor



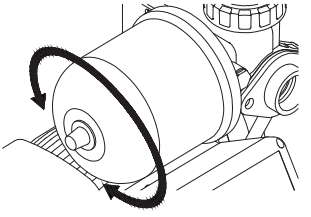
A.Remove the terminal cover.
B.Unplug the wires and motor power wirefrom the terminal block on the control board.
C.Unplug the pressure/flow/ temperature sensors signal wires from the control board.
D.Remove the control board mounting screws and the transistor mounting screws, and remove the control board.
E.Remove the capacitor and unplug the wires.



F. Install a new capacitor and make sure the wires are properly plugged in.
G.Install a new control board and make sure the transistor and control board mounting screws are securely tightened.
H.Reconnect the power cord/motor power cord/pressure/flow/temperature signal wires to the control board in sequence. Make sure the screws are tightened and the connectors are properly plugged.

⑤ Install the terminal cover

⑥ Replacing the Pressure Tank



A.Turn the tank counterclockwise to remove it.
B.Prepare a new tank and put it back in clockwise.
C.Adjust the pressure tank’ s pressure.
D.The default value of the starting pressure and pressure tank are as follows:

Model	Starting Pressure	Tank Pressure
HP/E-200	1.2cm²	0.8cm²
HP/E-300	1.6cm²	1.1cm²
HP/E-400	2.0cm²	1.4cm²
HP/E-600	2.0cm²	1.4cm²
HP/E-800	2.0cm²	1.4cm²

8.Status Light and troubleshooting instructions

Before doing the troubleshooting, please turn off the power to ensure the personnel safety.

③ HP/HPE/HPF Series indicator light Instructions

A.HP series light indication instructions:

Indicator Light Status	Pump Status
Solid red light	Pump is in standby mode
Flashing red light	Pump is running
Flashing red light twice and stop for one second	Pump shutdown for lack of water
Flashing red light three times and stop for one second	Pump shutdown for high pump body temperature
Flashes red light four times and stop for one second	Pump shutdown for high motor temperature
Flashes red light five times and stop for one second	Pump shutdown for abnormal power supply voltage

B.HPE/HPF series light indication instructions:

Indicator Light Status	Pump Status Description
Solid red light	Pump is in standby mode
Flashing red light	Pump is running
Flashing red light twice and stop for one second	Pump shutdown for lack of water (Note 1)
Flashing red light three times and stop for one second	Pump shutdown for high pump body temperature
Flashes red light four times and stop for one second	Pump shutdown for high motor temperature

*HPF has no Note 1 function

C.Problem Shooting:

Problems	Symptoms	Causes & Solutions
Pump does not start when turn on the faucet **or** **Pump shutdown while faucet is on**	Status indicator light is off	No power supply to the control board. Check the power supply.
	Solid red light	No water flow or pressure is detected. Check if the pipes are blocked or have air bubbles.
	Flashing red light	The impeller may be stuck. Use a screwdriver to rotate the fan clockwise from the fan cover. If it cannot be rotated freely, please contact the supplier for service.
	Flashing red light twice and stop for one second	The pump shutdown for no water supply. It will automatically resume or you can press the forced start button to start the pump when the water supply is restored.
	Flashing red light three times and stop for one second	The pump temperature is too high to activate the protection. It will automatically resume after the water temperature drops.
	Flashes red light four times and stop for one second	The motor temperature is too high to activate the protection. It will automatically resume after the motor temperature drops.
	Flashes red light five times and stop for one second	Voltage is abnormal. Please check the supplied voltage if it meets the motor voltage setting.
Pump on and off frequently	Outlet pipe leaks	Check if the faucet is turned off or if there is a leak in the pipe.
	Air remains in the pump or outlet pipe	Check if there is a leakage from the water source or inlet pipeline to have the air inside.
	Check valve is abnormal	If the check valve is stuck by foreign object, please disassemble it and clean it, then, assemble it.
	Water usage is lower than the pump starting flow	Turn on the faucet larger or adjust the starting flow rate of the check valve.
	Insufficient water source	Check if the water supplied is sufficient.
Pump starts automatically without turning faucet on	Outlet pipe leaks	Check if the faucet is turned off or there is a leak in the pipeline.
	Air remains in the pump or outlet pipe	Check if the water source and inlet pipe are leaking and causing air to enter.
	Flow sensor’ s signal is abnormal	Disassemble it and clean the foreign object.

Problems	Symptoms	Causes & Solutions
Pump does not stop running	Outlet pipe leakage is greater than the starting flow	Check if the faucet is closed or if there is a leak in the pipe. If necessary, adjust the start flow rate detected by the check valve.
	Air remains in the pump or outlet pipe	Check if the water source and inlet pipe are leaking and causing air to enter.
	Flow sensor' s signal is abnormal	Disassemble it and clean the foreign object.
Pump is running normally but the water output is less or no water.	Blockage in the pump inlet and outlet pipes	Check the pipes and clean the foreign objects.
	Pump inlet filter is clogged	Check and clean the filter.
	Insufficient water supply	Check the water source.
	Air blockage in the outlet pipe	Remove the air from the pipe.
Electric shock while touching the pump	Grounding failure	Check if the grounding wire if it is properly grounded.