Before starting work on the pump, make sure that the electricity supply has been switched off and that it cannot be accidentally switched on.

**Limited Warranty:**

This product is warranted to the first user only to be free of defects in material and workmanship for a period of 12 months from date of installation, but no more than 18 months from date of manufacture. Our liability under this warranty shall be limited to repairing or replacing the product, at no cost to the original purchaser. Proof of purchase and installation date, failure date, and installation, but no more than 18 months from date of manufacture. Our liability under this warranty shall be limited to repairing or replacing the product, at no cost to the original purchaser. This warranty is subject to due compliance by the original purchaser with all directions and conditions set out in the installation and operating instructions. Failure to comply with these instructions, damage or breakdown caused by fair wear and tear, negligence, misuse, incorrect installation, inappropriate chemicals or additives in the water, inadequate protection against freezing, rain or other adverse weather conditions, corrosive or abrasive water, lightning or high voltage spikes or through unauthorised persons attempting repairs are not covered under warranty.

We will not be liable for any incidental or consequential damages, losses, or expenses, arising from installation, use, or any other causes. This warranty sets forth specific legal rights and obligations, however, additional rights may exist, which may vary from country to country. 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 supersedes all previous publications.

**TROUBLESHOOTING**

<table>
<thead>
<tr>
<th>Problem</th>
<th>Cause</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pump does not start</td>
<td>a. No power supply</td>
<td>Connect the electricity supply</td>
</tr>
<tr>
<td>2. Pump stops frequently</td>
<td>b. Leakage in suction pipe or air in the water</td>
<td>Check the suction pipe and water supply</td>
</tr>
<tr>
<td>3. Pump starts and stops too frequently</td>
<td>c. Poor water supply or air suck in</td>
<td>Check if supply voltage is correct</td>
</tr>
<tr>
<td>4. Pump does not stop when water is not consumed</td>
<td>d. Excessive pressure setting</td>
<td>Adjust pressure per “ADJUST PRESSURE SWITCH” in the Manual</td>
</tr>
<tr>
<td>5. Electric shock</td>
<td>e. Insufficient grounding</td>
<td>Repair grounding</td>
</tr>
<tr>
<td>6. Pump does not start</td>
<td>f. Seized-up pump</td>
<td>Place a screwdriver against the shaft end of the motor to check if the motor will spin freely, and contact your pump supplier</td>
</tr>
<tr>
<td>7. Pump runs normal but with very low discharge flow</td>
<td>g. 3-phase motor runs in incorrect rotation</td>
<td>Adjust pressure per “ADJUST PRESSURE SWITCH” in the Manual</td>
</tr>
<tr>
<td>8. Pump stops too frequently</td>
<td>h. Defective check valve</td>
<td>Replace with a new valve</td>
</tr>
<tr>
<td>9. Pump stops or stalls due to overheated motor</td>
<td>i. Overheated motor</td>
<td>Check if supply voltage is correct</td>
</tr>
<tr>
<td>10. Pump does not start</td>
<td>j. Overheated motor</td>
<td>Check if supply voltage is correct</td>
</tr>
</tbody>
</table>

**OPERATING CONDITIONS**

- Ambient temp. : Max. +40°C (104°F) for cold water series Max. +90°C (194°F) for hot water series
- Water temp. : +2°C (36°F) – +40°C (104°F)
- System pressure : SSA200W,300W,400W Max. 5 kg/cm² (70 PSI) SSA600W,800W Max. 7 kg/cm² (99 PSI)
- Relative humidity : Max. 85% (RH)

**LITIQUIDS TO BE PUMPED**

These pumps are designed for the pumping of non-aggressive water, or water not containing solid particles.

**INSTALLATION**

1. The pump foundation should be rigid enough to absorb any vibration from the motor, and the pump should be securely bolted to the foundation.
2. It is recommended that the plumber/installer provides an adequate drainage system to avoid damage in case of leakage, particularly when installed indoors. When it is installed outside, it should be covered by a weather-proof housing, well ventilated to allow motor heat to escape.
3. The pump should be installed as close as possible to the water source.
4. When used with water heaters, a check valve should be installed between pump (discharge) pipeline and water heater to avoid high-pressure steam backflow. Besides, negative inlet pressure application is required to avoid cavitation.
5. It is recommended to shut off the pump when the water source is unavailable; although it has the dry run cut off function.
6. The pump has a built-in check valve. It is not necessary install any other valve on the suction.
7. To avoid your furniture damage, do not install the pump on ceiling, carpet or any place close to electrical appliance, outdoor installation must be covered by tent.

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5. Piping joints should be fitted carefully to prevent leaking problem. A leaking problem in the suction line will cause the pump to lose suction capacity, while a leaking problem in the discharge line will cause the product ON/OFF very frequently even while no any water is in used.

6. In the suction lift application, the connection between the suction line and pump must be airtight, and the suction pipe must be positioned so it has an upward slope or horizontal to the pump (thus avoiding the formation of air pockets).

- When used on a suction lift, a foot valve should be fitted on the suction line, below the water level.
- If hose is used as the suction pipe, it must be non-collapsible.
- To minimize pressure drop, the discharge pipe should be at least as large as the discharge port of the pump.

**ELECTRICAL CONNECTION**

1. Ensure the mains voltage is the same as the voltage of the pump (for the 60Hz dual-voltage models, there is a voltage switch on the IC board inside the control box) and that the pump is safely connected to ground/earth.

2. The single phase models are optionally supplied with plug and lead and the product comes with plug and lead can be connected directly to the mains supply. The single phase models without plug and lead and also the three phase models should hook up with a circuit breaker.

**WIRING DIAGRAM**

Risk of Electric Shock - This pump is supplied with grounding conductor or a 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. Before operation, please ensure the voltage is correct and the circuit breaker and grounding connectors are all connected in accordance with local regulations. In addition, please connect the product to an electrical leakage breaker to prevent more serious electric shock.

**OPERATION AND MAINTENANCE**

**PRECAUTIONS**

1. The pump should be shut down and the trouble corrected if the pump is running at speed and found to have any of the following problems:
   - No water discharged (Green light flash)
   - Insufficient water discharged
   - Pump runs hot (Red light flash) (only apply to the cold water models)
   - Excessive vibration
   - Motor run hot
   - Motor burn out

2. If the pump is to be inactive for long periods, it should be rinsed thoroughly with clean water, then, drained and stored in a dry place.

3. If the pump sticks after periods of inactivity, a screw driver slot is provided on the motor shaft end to free up the pump/motor. To do so, insert a screw driver in the slot on the motor shaft and turn to free the rotor. If this does not remedy the problem, the unit will need dismantling.

4. Pressure tank air charge should be checked at regular intervals of every 6 months and after the pump has not been used for a prolonged period. To check the Pressure Tank air pressure, turn off power, open a tap on the discharge line to release pressure from the pump, unscrew the black plastic cover and apply an accurate pressure gauge to the valve as shown in Fig 4.

5. Adjust the pressure only when the cut in pressure is higher than the preset activation point. Do not adjust the pressure to exceed the manufacturer suggestion maximum pressure range as below.

6. The dry-run is defined when the motor is running AND the flow rate is less than minimum requirement of 3.0 lpm AND when pressure is less than the pressure switch setting.

7. If the pump runs hot (Red light flash) (only apply to the cold water models), the problem may be corrected by decreasing the flow rate or lowering the pressure switch setting.

**OPERATIONAL FEATURES**

- The pump is not designed for continuous operation under low discharge flows such as slow closing float valves, slow running taps.

Under this application, please install an extra pressure tank of adequate volume to avoid “cycling”. Leaking discharge line and leaking taps will damage the unit through causing the pump to repeatedly start and stop.

**ADJUSTMENTS AND RESET PROCEDURES**

**ADJUST PRESSURE SWITCH (Range: 1.0 – 3.0kg/cm² / 14-42psi)**

Adjust the pressure switch setting (according to the pump models) as shown in Fig 5. Make sure the system is primed.

The pump is supplied with a preset pressure in the pressure switch. For most applications, it will be satisfactory. In some cases a different pressure may be required. This can be achieved by following the instructions below. However, it is highly recommended that the adjustment is only done by the professional personnel.

Instructions for pressure adjustment (Fig. 5):

1. If pump does not start when tap is on, adjust clockwise (‘+’) till it starts.
2. If pump does not stop when no water is consumed, adjust counterclockwise (‘-’) till it stops.
3. After adjustment is made, turn it on and off several times to make sure it operates normally.

Adjust the pressure switch setting (according to the pump models) as shown in Fig 5. Make sure the system is primed.

1. The pump should be shut down and the trouble corrected if the pump is running at speed and found to have any of the following problems:
   - No water discharged (Green light flash)
   - Insufficient water discharged
   - Pump runs hot (Red light flash) (only apply to the cold water models)
   - Excessive vibration
   - Motor run hot

2. If the pump is to be inactive for long periods, it should be rinsed thoroughly with clean water, then, drained and stored in a dry place.

3. If the pump sticks after periods of inactivity, a screw driver slot is provided on the motor shaft end to free up the pump/motor. To do so, insert a screw driver in the slot on the motor shaft and turn to free the rotor. If this does not remedy the problem, the unit will need dismantling.

4. Pressure tank air charge should be checked at regular intervals of every 6 months and after the pump has not been used for a prolonged period. To check the Pressure Tank air pressure, turn off power, open a tap on the discharge line to release pressure from the pump, unscrew the black plastic cover and apply an accurate pressure gauge to the valve as shown in Fig 4.

Pressure should be adjusted to the original pre-charge as follows:

<table>
<thead>
<tr>
<th>Model</th>
<th>Power (HP / W)</th>
<th>Preset activation point (kg/cm² / psi)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSA-200(H)</td>
<td>0.25 / 200</td>
<td>1.2 / 17</td>
</tr>
<tr>
<td>SSA-300(H)</td>
<td>0.35 / 300</td>
<td>1.8 / 22</td>
</tr>
<tr>
<td>SSA-400(H)</td>
<td>0.5 / 400</td>
<td>2.0 / 28</td>
</tr>
<tr>
<td>SSA-600(H)</td>
<td>0.75 / 600</td>
<td>2.0 / 28</td>
</tr>
<tr>
<td>SSA-800(H)</td>
<td>1.0 / 750</td>
<td>2.0 / 28</td>
</tr>
</tbody>
</table>

**FREQUENTLY ASKED QUESTIONS**

1. What causes the pump to start?
2. What is the maximum pressure switch activation point?
3. What causes the pump to stop?
4. What is the purpose of the built-in pressure tank?
5. How are the dry-run condition determined and the protection provided?

The dry-run is defined when the motor is running AND the flow rate is less than minimum requirement of 3.0 lpm AND when pressure is less than the pressure switch setting.

The protection is provided:

- To avoid dry run without water over 2 minutes, the pump will automatically rest for 15 minutes and restart again, if above cycling happen accumulate 10 times, the rest time will become 30 minutes and restart afterward.

Note: Above unusual pump shutdown, users may stop the power supply over 6 seconds and reconnect again to restart, if it is necessary.