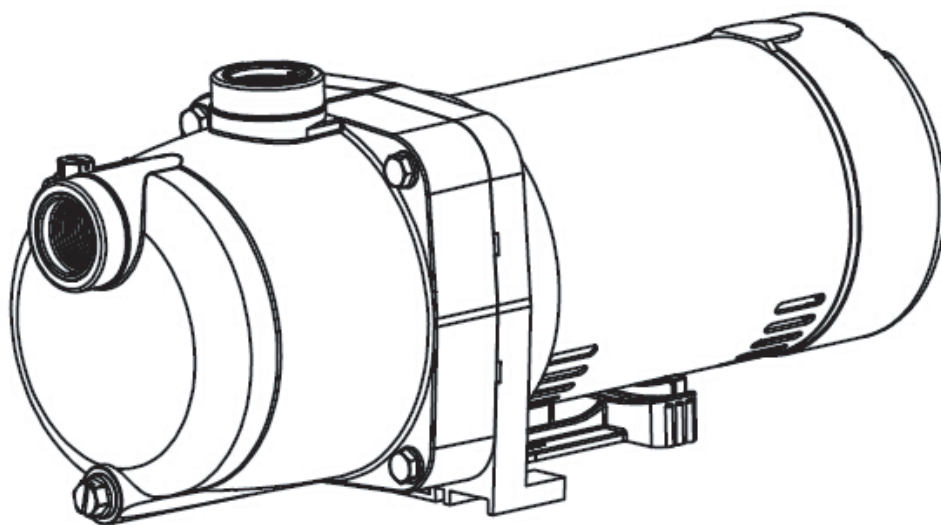


# Rx Clear® Universal Booster Pump

**MODEL 701460**



# Section1. IMPORTANT SAFETY INSTRUCTIONS

## READ AND FOLLOW ALL INSTRUCTIONS

### 1.1 Safety Instructions

All electrical work must be performed by a licensed electrician and conform to all national, state, and local codes. When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

### WARNING

- To reduce the risk of injury, do not permit children to use this product.
- To reduce the risk of property damage or injury, do not attempt to change the backwash (multiport, slide, or full flow) valve position with the pump running.
- Booster pumps are powered by a high voltage electric motor and must be installed by a licensed or certified electrician or a qualified swimming pool service technician.
- **RISK OF ELECTRIC SHOCK, FIRE, PERSONAL INJURY, OR DEATH.** Connect only to a branch circuit that is protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the circuit is protected by a GFCI. Make sure such a GFCI should be provided by the installer and should be tested on a routine basis. To test the GFCI, push the test button. The GFCI should interrupt power. Push the reset button. Power should be restored. If the GFCI fails to operate in this manner, the GFCI is defective. If the GFCI interrupts power to the pump without the test button being pushed, a ground current is flowing, indicating the possibility of electrical shock. Do not use the pump. Disconnect the pump and have the problem corrected by a qualified service representative before using.

Due to the potential risk of fire, electric shock, or injuries to persons, **Booster Pumps** must be installed in accordance with the National Electrical Code® (NEC®), all local electrical and safety codes, and the Occupational Safety and Health Act (OSHA®).

- Incorrectly installed equipment may fail, causing severe injury or property damage.
- Do not connect the system to an unregulated city water system or other external source of pressurized water producing pressures greater than 35 PSI. Trapped air in system can cause the filter lid to be blown off, which can result in death, serious personal injury, or property damage. Be sure all air is out of the system before operating.
- To minimize the risk of severe injury or death the filter and/or pump should not be subjected to the piping system pressurization test.

Local codes may require the pool piping system to be subjected to a pressure test. These requirements are generally not intended to apply to the pool equipment such as filters or pumps. The pool equipment is pressure tested at the factory. However, if the WARNING cannot be followed and pressure testing of the piping system must include the filter and/or pump, **BE SURE TO COMPLY WITH THE FOLLOWING SAFETY INSTRUCTIONS:**

- ◆ Check all clamps, bolts, lids, lock rings and system accessories to ensure they are properly installed and secured before testing.
- ◆ RELEASE ALL AIR in the system before testing.
- ◆ Water pressure for test must NOT EXCEED 35 PSI.
- ◆ Water temperature for test must NOT EXCEED 100°F (38°C).

- ◆ Limit test to 24 hours. After test, visually check system to be sure it is ready for operation.
- Chemical spills and fumes can weaken pool/spa equipment. Corrosion can cause filters and other equipment to fail, resulting in severe injury or property damage. Do not store pool chemicals near your equipment.

## CAUTION

- Do not start pump dry! Running the pump dry for any length of time will cause severe damage and will void the warranty.
- This pump is for use with permanently installed pools and may also be used with hot tubs and spas if so marked. Do not use with storable pools. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity.
- Do not install within an outdoor enclosure or beneath the skirt of a hot tub or portable spa. The pump requires adequate ventilation to maintain air temperature at less than the maximum ambient temperature rating listed on the motor rating plate.

### 1.2 Pool Pump Suction Entrapment Prevention Guidelines

## WARNING

**Pump suction is hazardous and can trap and drown or disembowel bathers. Do not use or operate swimming pools, spa, or hot tubs if a suction outlet cover is missing, broken, or loose.** The following guidelines provide information for pump installation that minimizes the risk of injury to users of pools, spas, and hot tubs:

**Entrapment Protection** - The pump suction system must provide protection against the hazards of suction entrapment.

**Suction Outlet Covers** - All suction outlets must have correctly installed, screw-fastened covers in place. All suction outlet (drain) covers must be maintained. Drain covers must be listed/certified to the latest version of ANSI®/ASME® A112.19.8 or its successor standard, ANSI/APSP-16. They must be replaced if cracked, broken, or missing.

**Number of Suction Outlets Per Pump** - Provide at least two (2) hydraulically-balanced main drains, with covers, as suction outlets for each circulating pump suction line. The centers of the main drains (suction outlets) on any one (1) suction line must be at least three (3) feet apart, center to center. See Figure 1.

The system **must** be built to include at least two (2) suction outlets (drains) connected to the pump whenever the pump is running. However, if two (2) main drains run into a single suction line, the single suction line may be equipped with a valve that will shut off both main drains from the pump. The system shall be constructed such that it shall not allow for separate or independent shutoff or isolation of each drain. **See Figure 1.**

More than one (1) pump can be connected to a single suction line as long as the requirements above are met.

**Water Velocity** - The maximum water velocity through the suction fitting or cover for any suction outlet must be 1.5 feet per second unless the outlet complies with the latest version of ANSI/ASME A112.19.8 or its successor standard, ANSI/APSP-16, the standard for Suction Fittings For Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs. In any case, do not exceed the suction fitting's maximum designed flow rate.

If 100% of the pump's flow comes from the main drain system, the maximum water velocity in the pump suction hydraulic system must be six (6) feet per second or less, even if one (1) main drain (suction outlet) is

completely blocked. The flow through the remaining main drain(s) must comply with the latest version of ANSI/ASME A112.19.8 or its successor standard, ANSI/APSP-16, the standard for Suction Fittings For Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs.

**Testing and Certification** - Suction outlet covers must have been tested by a nationally recognized testing laboratory and found to comply with the latest version of ANSI/ASME A112.19.8 or its successor standard, ANSI/APSP-16, the standard for Suction Fittings For Use in Swimming Pools, Wading Pools, Spas, and Hot Tubs.

**Fittings** - Fittings restrict flow; for best efficiency use fewest possible fittings (but at least two (2) suction outlets).

Avoid fittings which could cause an air trap.

Pool cleaner suction fittings must conform to applicable International Association of Plumbing and Mechanical Officials (IAPMO®) standards.

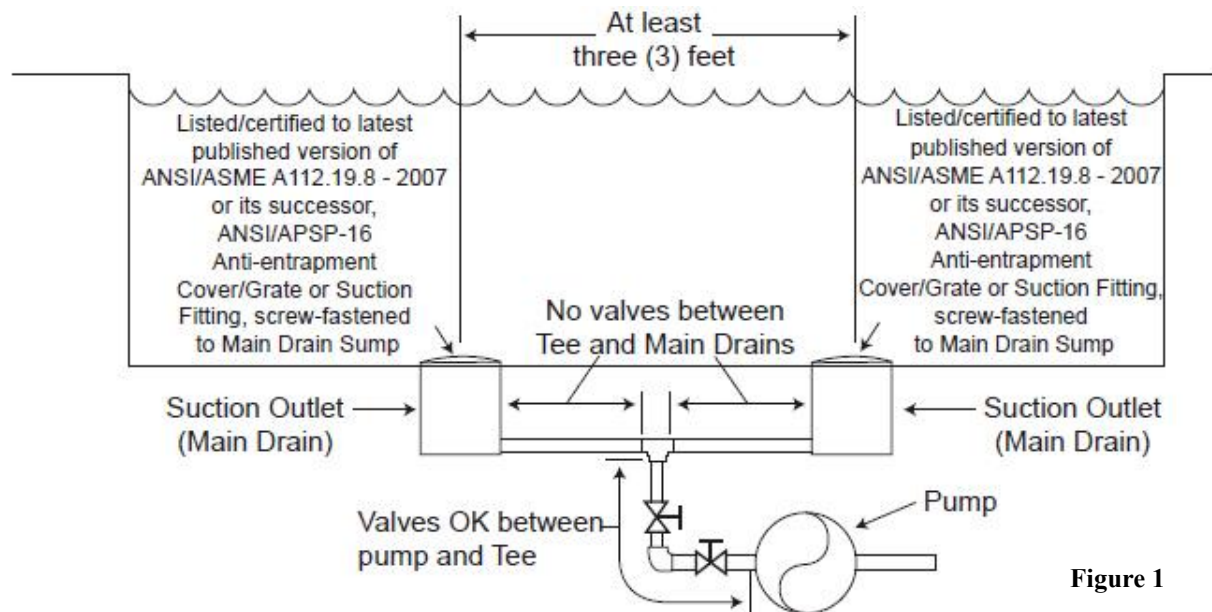


Figure 1

## Section2. General Description

### 2.1 Introduction

This manual contains information for the proper installation, operation and maintenance of the high-pressure pump. Procedures in this manual must be followed exactly. For address information, see the back cover of this manual.

### 2.2 Description

The high-pressure pump supplies high pressure water to the pool cleaner to optimize cleaner efficiency. The pump is not self-priming and should only be used when the pool filtration pump is on.

**NOTICE:** Running the high-pressure pump without a filtration pump will damage the high-pressure pump. Improper operation of the high-pressure pump will void the warranty.

### 2.3 Preparation

1. Upon receipt of the pump, check the carton for damage. Open the carton and check the pump for concealed damage, such as cracks, dents or a bent base. If damage is found, contact the shipper or distributor where you purchased the pump.
2. Inspect the contents of the carton and verify that all the parts are included. Replacement Parts List.

## Section 3. Installation

### 3.1 Electrical

1. The pump motor must be securely and adequately grounded using the green screw provided. Ground before attempting to connect to an electrical power supply. **Do not ground to a gas supply line.**
2. Insulate all connections carefully to prevent grounding or short-circuits. Sharp edges on terminals require extra protection. To prevent wire nuts from loosening, tape them using a suitable, listed (UL, ETL, CSA) electrical insulating tape. For safety, and to prevent entry of contaminants, reinstall all conduit and terminal box covers. **Do not force connections into the conduit box.**
3. A separate time clock (in addition to the filtration system time clock) is recommended to control the On/Off functions of the booster pump. A manual switch can also be used.
4. If a time clock is used, set it to turn the pump on at least a half an hour after the pool filtration pump is turned on, and turn the pump off at least half an hour before the filtration pump shuts off. Periodically check the time clock settings to make sure they are properly synchronized.

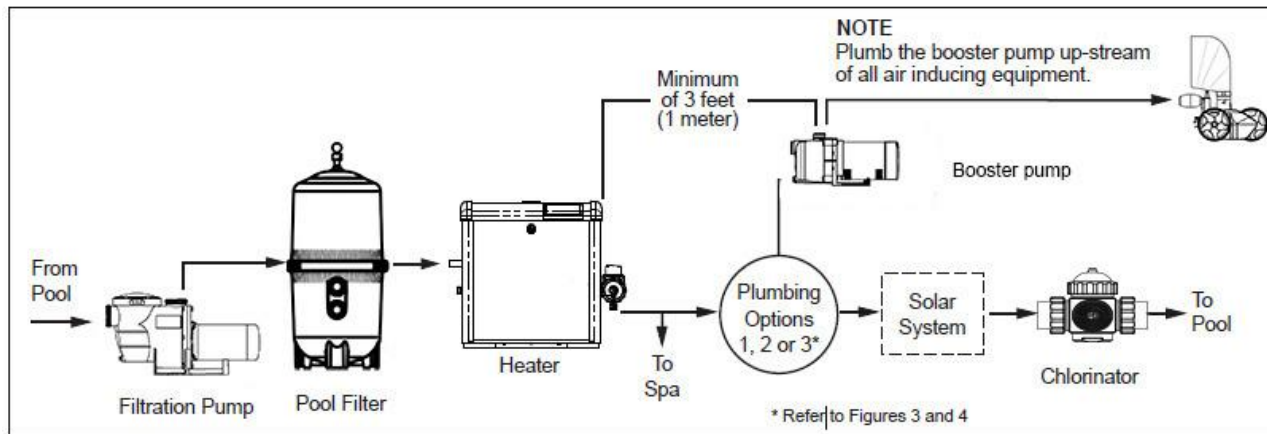
### 3.2 Plumbing

**NOTICE:** Be careful not to overtighten any pipe fitting on the inlet or outlet of the booster pump. Overtightening can cause the housing to crack.

#### 3.2.1 Requirements

The high-pressure Pump requires a dedicated return line. Plumb the booster pump into the system so that it always receives flow from the filtration pump.

To ensure proper function of the pump and the cleaner, refer to **Figure 2** and adhere to the following guidelines for specific equipment.



**Figure 2. Typical Equipment Layout**

1. Plumb the dedicated line upstream of all air inducing equipment.
2. If a heater is installed on the system, tap the inlet for the booster pump into the return line downstream and at least three (3) feet (1 meter) from the heater discharge. See Figure 2. **Do not tap the booster pump inlet into the three-foot (1 meter) section of heat sink pipe that comes directly out of the heater.**
3. Some solar heating systems utilize the entire water flow when the panels are being purged of air. If the pump is installed in a non-flow pipe during solar panel purges, install an automatic override to shut off the pump.
4. Plumb the booster pump inlet higher, upstream and as far away as possible from a chlorinator.

#### 3.2.2 Pipe Sizing

1. Use rigid PVC pipe with a minimum diameter of 3/4", 1-1/2" is recommended, for the dedicated return line. Flexible PVC piping is not recommended for the dedicated pool return line underground as it can be

damaged by expansion and movement caused by the surge of pump pressure. Refer to Figures 3 and 4.

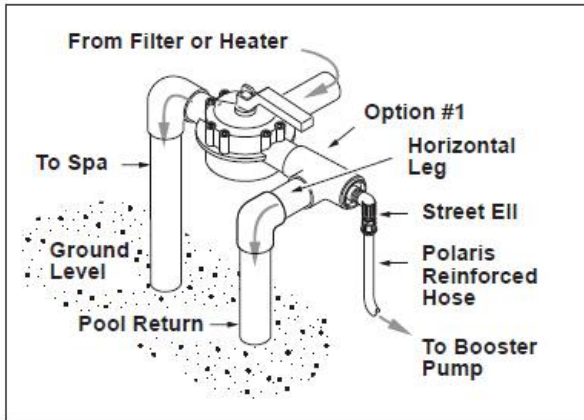


Figure 3. Preferred Plumbing Configuration

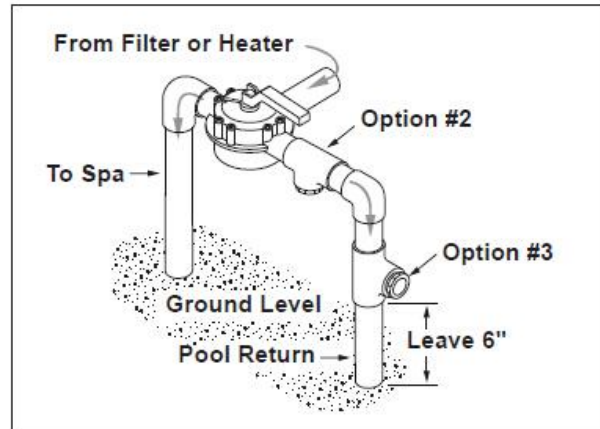


Figure 4. Alternate Plumbing Configuration

2. The booster pump inlet connection line should be at least 3/4" pipe.
3. Do not tap into the top of a horizontal line.
4. Use 90° street ells to minimize bends and loops in the Polaris reinforced hose.

### 3.2.3 Pump Location

1. the pump within one 1 foot (30 cm) above the water level. The pump should not be elevated more than a few feet above the water level of the pool.
2. If the pump is located below water level, isolation valves must be installed on both the suction and return lines to prevent back flow of pool water during any routine or required servicing
3. The pump and other circulation equipment must be located more than 5 feet (1,5 meter) from the water. Choose a location that will minimize turns in the piping.
4. The pump must be placed on a solid foundation that will not vibrate. To further reduce the possibility of vibration noise, bolt the pump to the foundation.
5. The pump foundation must have adequate drainage to prevent the motor from getting wet. The pump needs to be protected from the rain and sun.
6. Proper ventilation is required for the pump to operate normally. All motors generate heat that must be removed by providing proper ventilation.
7. Provide access for future service by leaving a clear area around the pump. Allow plenty of space above the pump for servicing.
8. If the equipment is under cover, provide adequate lighting.

### 3.2.4 Install the Pump

1. Mount the pump using two (2) concrete expansion anchors to ensure stability.
2. Slide the quick connect retainer ring over the Softube quick connect threads. Install quick connects onto pump discharge and supply ports using either silicone sealant or teflon tape. **Pipe dope should never be used on quick connect threads. Do not overtighten.**
3. Measure and cut reinforced hose ensuring cut is clean, with no more than a 30° off straight edge. Avoid unnecessary loops or bends in the hose.
4. Push the hose onto the quick connect until it is flush against the hose barb base.
5. Holding the hose in place, pull and twist the sleeve on the quick connect over the hose as far as possible. Snap the clip into place.

### 3.2.5 Installation Recommendations

1. If the pump is located below water level, isolation valves must be installed on both sides of the pump to prevent back flow of pool water during any routine or required servicing.

2. To help prevent difficulty in priming, install the suction pipe without high points (above inlet of pump - inverted “U”s in plumbing), which can trap air.
3. The piping must be well supported and not forced together where constant stress will be experienced.
4. Always use properly sized valves.
5. Use the fewest fittings possible. Every additional fitting has the effect of moving the equipment farther away from the water.

### 3.2.6 Conduct Pressure Test

## **WARNING**

- When pressure testing a system with water, air is often trapped in the system during the filling process. This air will compress when the system is pressurized. Should the system fail, this trapped air can propel debris at a high speed and cause injury. Every effort to remove trapped air must be taken, including opening the bleed valve on the filter and loosening the pump basket lid on the filter pump while filling the pump.
  - Trapped air in system can cause filter lid to be blown off, which can result in death, serious personal injury, or property damage. Be sure all air is properly out of system before operating. **DO NOT USE COMPRESSED AIR TO PRESSURE TEST OR CHECK FOR LEAKS.**
  - When pressure testing the system with water, it is very important to make sure that the pump basket lid on the filter pump is completely secure.
  - Do not pressure test above 35 PSI. Pressure testing must be done by a trained pool professional. Circulation equipment that is not tested properly can fail, which could result in severe injury or property damage.
1. Fill the system with water, using care to eliminate trapped air.
  2. Pressurize the system with water to no more than 35 PSI.
  3. Close the valve to trap pressurized water in the system.
  4. Observe the system for leaks and/or pressure decay.

## **Section 4. Operation**

### 4.1 Start-up

## **CAUTION**

- ✧ Never run the booster pump without water. Running the pump “dry” for any length of time can cause severe damage to both the pump and motor and will void the warranty.
- ✧ Never run the booster pump without the cleaner connected. Running the pump without the cleaner connected will cause damage to the pump impeller and will void the warranty.

If this is a new pool installation, make sure all piping is clear of construction debris and has been properly pressure tested. The filter should be checked for proper installation, verifying all connections and clamps are secure according to the manufacturer's recommendations.

## **WARNING**

To avoid risk of damage or injury, verify that all power is turned off before starting this procedure.

1. Turn filtration pump ON.
2. Open the filter pressure release to relieve the system system pressure until water comes out.
3. If the filter pump is located below the water level of the pool, opening the filter pressure release valve will prime the pump with water.
4. Once all the air has left the filter, close the pressure release valve.
5. Turn on the power to the booster pump. Then turn on the booster pump.
6. The booster pump should prime. The time it takes to prime will depend on the elevation and length of pipe used on the suction supply pipe.
7. If the booster pump does not prime and all the instructions to this point have been followed, check for a suction leak.

## Section 5. Maintenance

### 5.1 Winterizing the Pump



## CAUTION

- The pump **must** be protected when freezing temperatures are expected. Allowing the pump to freeze will cause severe damage and void the warranty.
  - **Do not use antifreeze solutions in the pool, spa, or hot tub systems!** Antifreeze is highly toxic and may damage the circulation system. The only exception to this is Propylene Glycol. For more information see your local pool/spa supply store or contact a qualified swimming pool service company
1. Drain **all** water from the pump, system equipment, and piping.
  2. Remove the drain plug. Store the drain plug in a safe location and reinstall it when the cold weather season is over. **Do not lose the o-ring.**
  3. Keep the motor covered and dry.
  4. When the system is reopened for operation, make sure all piping, valves, wiring, and equipment are in accordance with the manufacturer's recommendations. Pay close attention to the filter and electrical connections.
  5. The pump must be primed prior to starting; refer to *Section 4.1, Start-up*.



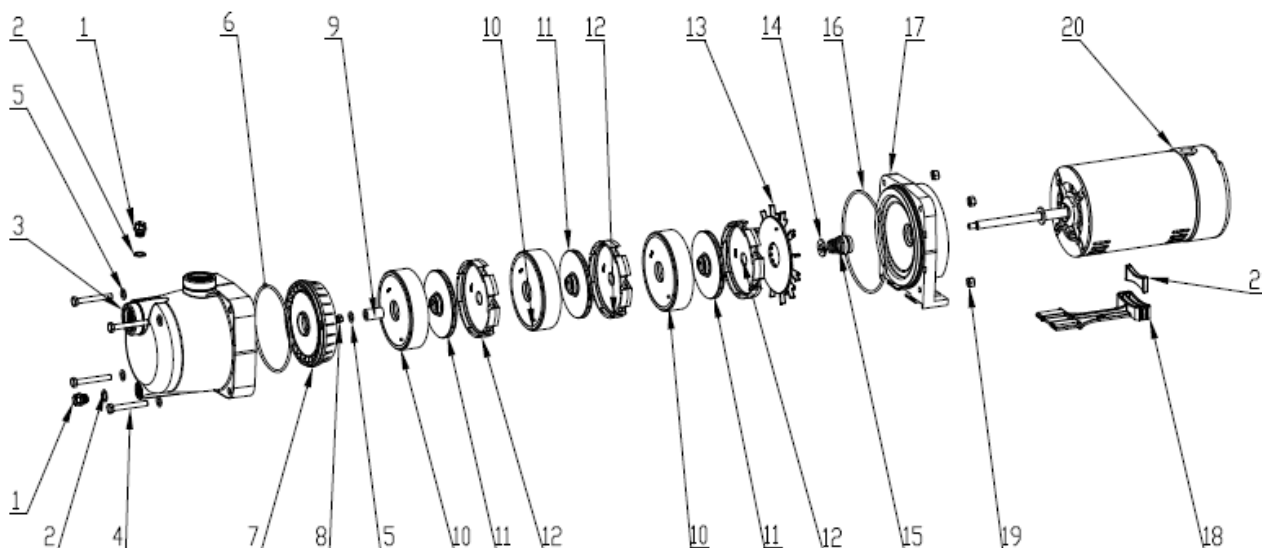
## Section6. TROUBLESHOOTING

SYMPTOMS	possible cause	WHAT TO DO
1. The motor does not start and makes no noise.	A. Check the electric connections. B. Check that the motor is live. C. Check the protection fuses.	C. If they are burnt-out, change them. <b>N.B.</b> If the fault is repeated immediately this means that the motor is short circuiting.
2. The motor does not start but makes noise.	A. Ensure that the mains voltage is the same as the value on the plate. B. Ensure that the connections have been made correctly. C. Check that all the phases are present on the terminal board. D. Look for possible blockages in the pump or motor. E. Check the condition of the capacitor.	B. Correct any errors. C. If not, restore the missing phase. D. Remove the blockage. E. Replace the capacitor.
3. The motor turns with difficulty.	A. Check the voltage which may be insufficient. B. Check whether any moving parts are scraping against fixed parts.	B. Eliminate the cause of the scraping.
4. The pump does not deliver.	A. The pump has not been primed correctly. B. The diameter of the intake pipe is insufficient. C. Blocked foot valve.	B. Replace the pipe with one with a larger diameter. C. Clean the foot valve.
5. The pump does not prime.	A. The intake pipe or the foot valve is taking in air. B. The downward slope of the intake pipe favours the formation of air pockets.	A. Eliminate the phenomenon and prime again. B. Correct the inclination of the intake pipe.
6. The pump supplies insufficient flow.	A. Blocked foot valve. B. The impeller is worn or blocked. C. The diameter of the intake pipe is insufficient.	A. Clean the foot valve. B. Remove the obstructions or replace the worn parts. C. Replace the pipe with one with a larger diameter.
7. The pump vibrates and operates noisily.	A. Check that the pump and the pipes are firmly anchored. B. There is cavitation in the pump, that is the demand for water is higher than it is able to pump. C. The pump is running above its plate characteristics.	A. Fix the loose parts more carefully. B. Reduce the intake height or check for load losses. C. It may be useful to limit the flow at delivery.

## TECHNICAL DATA

Model	HP	RPM	Volte / HZ	Amps
701460	1.0 HP	3450	115V/230V/60HZ	11.5

### Parts listing:



Ref. No.	Part No.	Description	QTY
1	88601007	Drain plug	2
2	65432002080	Gasket	2
3	647255271	Pump housing	1
4	65221015000	Screw M8*55	4
5	65244005000	Gasket M8	5
6	65431142080	O-ring	1
7	647255204	Base	1
8	65233022000	Nut M8	1
9	647255209	Sleeve	1
10	647255208	Under the impeller box cover	3
11	647276071	Impeller	3
12	647255207	Impeller box superstructure	3
13	647255203	Limit tablets	1
14	65244023000	Gasket	1
15	65028069000	Seal assembly	1
16	65431143080	O-ring	1
17	647255202	Pump cover	1
18	647255210	Mounting foot	1
19	65231004000	Nut M8	4
20	65023153000	1.0HP motor	1
21	647276001	Supporting foot	1