

U.S. Fluid Tech Corp.

Address: 20871 Johnson Street
Unit 107
Pembroke Pines, FL 33029
Telephone: (954) 392-0208
Fax: (954) 392-0209
e-mail: info@usfluid.com

U.S. Fluid Tech Corp.

OWNERS MANUAL

Spot Series

CAST IRON CENTRIFUGAL PUMPS
Epoxy coated - Bronze impeller



IMPORTANT

**Read these instructions before
installing your new pump**

0151060PL

Copyright 2001 by U.S. Fluid Tech Corp.

**THIS MANUAL CONTAINS THE NECESSARY INSTRUCTIONS
FOR THE PROPER ASSEMBLY, INSTALLATION AND
MAINTENANCE OF THE PUMPS.**

TABLE OF CONTENTS

1. Unpacking the equipment.....	1
2. Planning the installation	1
3. Installation	2
4. Priming	5
5. Before starting.....	6
6. Maintenance	7
7. Troubleshooting.....	8
8. Assembly process.....	9
9. Parts list	11



1. UNPACKING THE EQUIPMENT



Check the contents of each box for missing items and for damage that may have occurred during shipment. Report any loss and damage at once.

2. PLANNING THE INSTALLATION



The pump should be located so that short direct suction and discharge lines may be used. Plan the piping so as to employ the minimum number of bends, elbows and fittings.

Remember that each extra foot of piping increases pipe friction losses and reduces the effectiveness of the installation. Make sure that there will be sufficient height and floor space, after installation, to permit proper inspection and maintenance of the pump and auxiliary equipment. Provide weather shelter, if necessary, and protect the pump against flooding.

Foundation

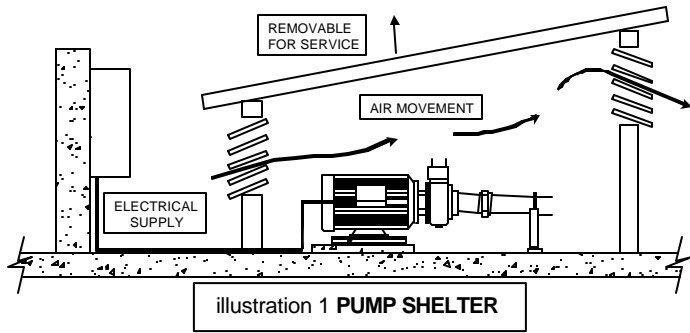
The pump should be set on a foundation which will absorb any vibration and provide a permanent and rigid support.



3. INSTALLATION

Pump Shelter

- The Shelter with removable roof protects the pump from rain, dust, plants, and sun. Locate the shelter at a proper level to avoid flooding.
- Proper ventilation is a must.
- Allow for proper drainage away from pump and motor.
- Check local codes for all electrical connections.
- Check local codes for all plumbing connections.



Suction Lift

The suction pipe must be kept free of air leaks, particularly when the suction line is long and the static suction is high. It is advisable to keep the suction pipe short, setting the pump as near as possible to the liquid.



The distance between the foot valve and the bottom of tank, should be a minimum of 2.0 times the pump's inlet size.

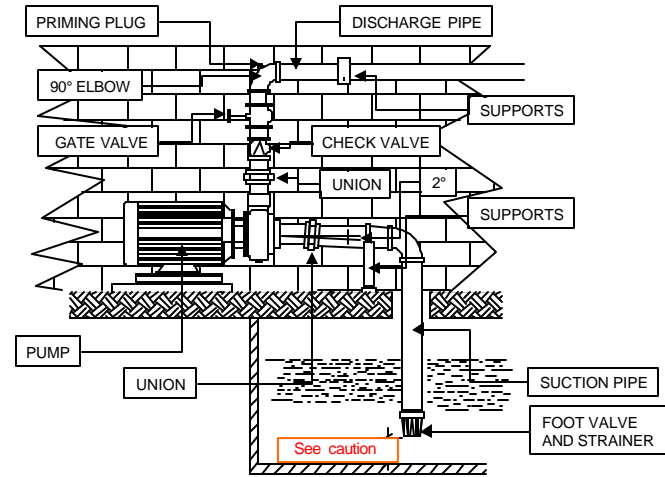


illustration 2 SUCTION LIFT



- ✓ Use pipe, or reinforced hose to make suction connections. Hose must have sufficient strength to resist collapsing under the atmospheric pressure.
- ✓ Piping run and connection fittings should be properly aligned and independently supported to reduce strain on pump case.
- ✓ The strainer in the foot valve must be at least four times the suction pipe area.
- ✓ The strainer in the suction must screen out solids that could clog the pump impeller.
- ✓ A check valve is required for back flow prevention, locate it on the discharge side of the pump.

- Suction pipe sloping downward to pump inlet will trap air which will reduce performance and may cause pump to lose priming.
- Suction piping that is undersize will create excess friction losses that may cause cavitation and reduction of pump performance.
- Excess fittings and bends in suction line results in trapped air, reduced performance, and high friction losses, which may cause cavitation.



Foot valve



When this unit works with suction lift, it is absolutely necessary to use a foot valve.

Provide a strainer to prevent foreign substances from being drawn into the pump or clogging the foot valve.

Suction head.

(Pump below water level)



- ✓ Use pipe, tubing or reinforced hose to make suction connections. Hose must have sufficient strength to resist collapsing under the atmospheric pressure while pump is running.
- ✓ It is important, even with a flooded suction condition, that proper pipe fittings are used, so that water is delivered to the impeller eye with a smooth flow and constant velocity.
- ✓ An isolation gate valve is used in a pressurized suction and discharge pipe to allow servicing the pump.
- ✓ Piping run and connection fittings should be properly aligned and independently supported to reduce strain on the pump case.
- ✓ If solids are present, a strainer should be used to protect the pump.

- ✓ A check valve is required for back flow prevention, locate it on the discharge side of the pump.

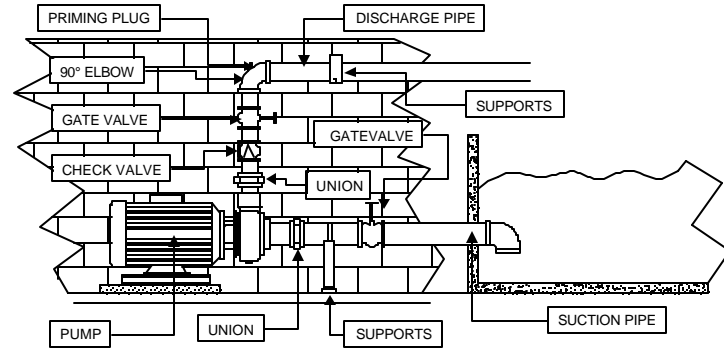


illustration 3 **SUCTION HEAD**

- Suction piping that is undersize will create excess friction losses that may cause cavitation and reduction in pump performance.
- Excess fittings and bends in suction line results in trapped air, reduced performance and high friction losses which may cause cavitation.



4. PRIMING

The pump must be primed before starting, so that both the pump casing and suction line are filled with liquid.

Suction lift with Foot Valve.

(Pump above water level)

- Open the drain plug.
- Open air vent (or pipe plug) on the highest tapped opening of pump case.

- Fill the pump and suction pipe with water completely to force all air out through vent.
- Rotate shaft slowly to allow any air trapped in the impeller to escape.
- When all air has been forced out of pump, replace pipe plug. Use pipe joint compound on plug threads and tighten as necessary to prevent leakage.

Suction head.

(Pump below water level)

The suction pipe must be kept free of air leaks. It is advisable to keep the suction pipe short, setting the pump as near as possible to the liquid that will be pumped.

- Open the discharge and suction gate valves, allowing water to fill the pump completely and force all air out through vent.
- Rotate shaft slowly to allow any air trapped in the impeller to escape.
- When all air has been forced out of the pump, replace the pipe plug. Use pipe joint compound on plug threads and tighten as necessary to prevent leakage.

5. BEFORE STARTING

Before starting the pump, check the direction of motor rotation. An arrow located on the pump casing indicates the correct rotation of the impeller. The motor should turn in the same direction.



- *Do not operate the pump without liquid as serious damage could occur. Many pump components depend upon the liquid for lubrication.*
- *Consult the maintenance section of this manual for lubrication instructions before operating the pump.*

6. MAINTENANCE

The SPOT series pumps are designed to operate efficiently for years, but like all other machinery, they require regular inspection and care. The purpose of regular inspection and maintenance is to prevent breakdowns and to obtain the longest service life possible.



- This pump does not need external lubrication, because the internal parts are lubricated by the liquid being pumped.
- You should review periodically the whole installation to find any leaks, or other problems.
- You should clean the whole unit periodically.
- If you notice any internal noise, remove the casing to inspect the internal pump parts if you found any damage, you should consult immediately with the technical service.
- Always maintain proper water level in your pool (above half way the skimmer opening). If the water level falls below the skimmer opening, the pump may lose the priming, run dry and may damage the seal. Continued operation in this manner could cause a loss of pressure, and may damage to the pump case, impeller and seal.
- Hair is one of the most damaging agents for the pump and motor. Enforce the use of bathing caps in the pool. Keep dogs away from the pool.
- Protect motor against heat, dirt and moisture. Protect the motor from the sun, provide ample cross ventilation. Keep motor, motor vents and surrounding area clean. Avoid sweeping or stirring up dust near the motor while it is running. Avoid storing (or spilling) pool chemicals near the motor. Provide protection from rain, snow, lawn sprinklers etc. Avoid splashing water near the motor

7. TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
1 No discharge with pump running.	a Pump speed too low. b Discharge pressure too high. c Impeller clogged. d Suction clogged. e Pump rotation is wrong (against direction of arrow on casing).	a Correct wrong or poor electrical connections. b Clear obstructions from piping outlet. c Back flush with clear water, disassemble pump to remove obstruction, if necessary. d Remove and clean strainer. Disassemble and flush suction piping if necessary. e To reverse a three phase motor, switch any two of the three power leads in the motor or controller.
2 Inadequate discharge.	a Pump speed too low. b Discharge pressure too high. c Impeller clogged. d Impeller damaged or worn out. e Wear ring damaged or worn out.	a See 1.a. Above. b See 1.b. Above. c See 1.c. Above. d Replace impeller. e Replace wear ring.
3 Excessive power consumption.	a Motor speed too high. b Discharge pressure too low.	a Internal wiring of motor is incorrect. Replace motor. b Consult technical service.
4 Excessive noise.	a Foreign matter rotating with impeller. b Discharge pressure too high.	a See 1.c. Above. b See 1.b. Above.

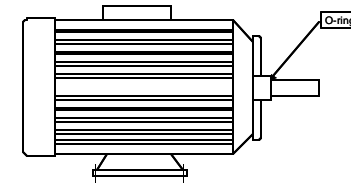
PROBLEM	CAUSE	SOLUTION
5 Excessive vibration.	a Foreign matter rotating with impeller. b Impeller damaged. c Unsupported suction or discharge piping.	a See 1.c. Above. b Replace impeller. c Support and secure piping.

8. ASSEMBLY PROCESS



below:

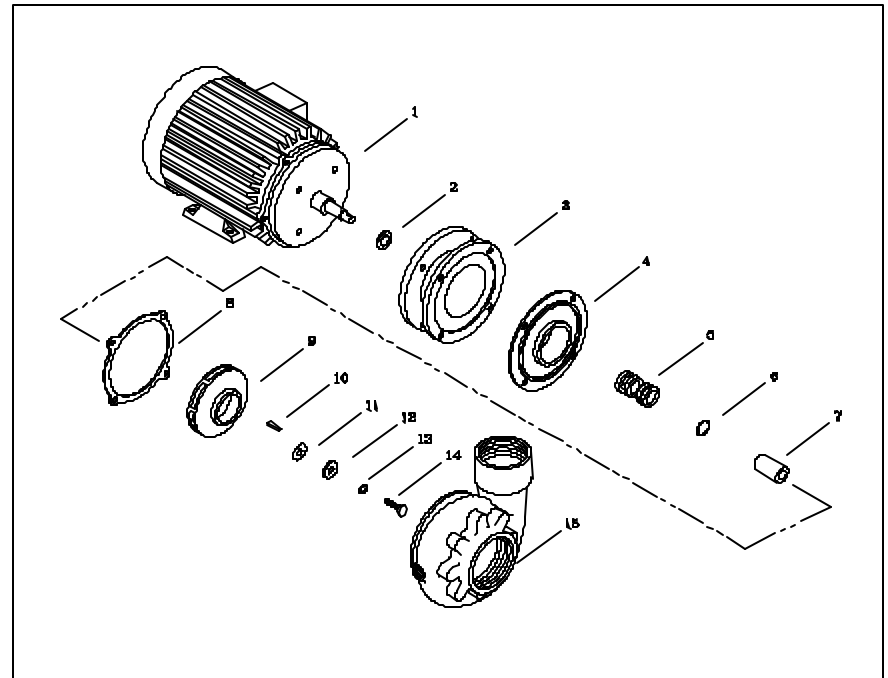
1. Place the motor (1) with the shaft facing up vertically. Clean the matching surfaces. Clean the motor shaft and coat its surface with a small amount of grease.
2. Put the water slinger (2) on the shaft as close as possible to the motor flange.
3. Stretch the O-ring (6) and place it on the motor shaft. as shown in the picture



4. Clean all machined surfaces of the adapter (3), then place it in the motor, tighten the screws well and evenly in an "X" sequence.
5. Place the ceramic part of the mechanical seal (5) on the back plate (4) so that the white shiny surface is visible. To make this operation easier, put oil in the elastic ring of the seal. Do not hit or damage in any way the ceramic part of the seal. Insert the seal using finger pressure only. Then, place the back plate on the adapter.
6. Clean the shaft sleeve surface (7). Place the rotating part of the mechanical seal (5), on the shaft sleeve. To make this operation easier, put oil in the elastic ring of the mechanical seal.

7. Then, put this assembly (Shaft sleeve-Rotating part) on the engine shaft. Check for a close fit between the white shiny surface of the ceramic part and the carbon ring of the mechanical seal.
8. After cleaning the surfaces thoroughly, place the gasket (8) in the back plate, be sure that the gasket holes coincide with back plate holes.
9. Place the key (10) on the shaft motor.
10. Fit the impeller (9) and slide it onto the motor shaft until the shaft sleeve.
11. Place the washer gasket (11), washer impeller (12), copper washer (13) and the impeller screw (14) and tighten the screw.
12. Place the casing (15) on the back plate and tighten the stainless steel screws well and evenly in an "X" sequence.
13. Make sure that the impeller rotates freely.

9. PARTS LIST



PARTS LIST					
ITEM	DESCRIPTION	SPOT-5	SPOT-7.5	SPOT-10	SPOT-15
1	MOTOR	184 JM	213-215JM	213-215JM	215JM
2	WATER SLINGER	1	1	1	1
3	ADAPTER-5	1			
3	ADAPTER-15		1	1	1
4	BACK PLATE	1	1	1	1
5	MECHANICAL SEAL 1.1/4 TYPE 21	1	1	1	1
6	O-RING	1	1	1	1
7	SHAFT SLEEVE	1	1	1	1
8	CASE GASKET	1	1	1	1
9	IMPELLER SPOT-5	1			
9	IMPELLER SPOT-7.5		1		
9	IMPELLER SPOT-10			1	
9	IMPELLER SPOT-15				1
10	KEY	1	1	1	1
11	WASHER GASKET	1	1	1	1
12	WASHER IMPELLER	1	1	1	1
13	COPPER WASHER	1	1	1	1
14	SCREW IMPELLER	1	1	1	1
15	CASING	1	1	1	1

The serial number located on the pump's nameplate, identifies the pump's model and is required for reference when ordering spare parts