

HUB CITY
IRON WORKS

Portable Phosphate System

Operation and Maintenance Manual



Hub City Iron Works
700 E Texas Ave.
Rayne, LA 70578
Phone: (337) 334-6969
Fax: (337) 365-6565
www.hubcityironworks.com

Customer: _____
Location: _____
Serial #: _____
Job#: _____
Local Rep: _____
Rep Phone: _____

Table of Contents

Introduction	2
Safety	3
Machine Specifications	4
Standard Features	4
Optional Features	4
Specifications	4
Plant Requirements	4
Controls	5
Equipment Layout.....	6
Process	6
Troubleshooting Guide	7
Parts List	8
Phosphate Applicator	8
Pump Skid.....	9
Tank Suction Kit.....	10
Recommended Spare Parts	11
Hydraulic/Pneumatic Schematic.....	11
Preventative Maintenance	12

Service

Call: 337.334.6969

Email: servicerequest@hubcityironworks.com

Spare Parts

Call: 337.334.6969

Visit: www.hubcityironworks.com

Sales

Call: 337.334.6969

Email: sales@hubcityironworks.com

Introduction

Portable Phosphate System (111-000-005-00)

Hub City Iron Works' Portable Phosphate System provides an innovative solution to applying phosphate to pipe connections. Instead of utilizing traditional methods such as dipping and spraying, the PPS functions by sealing against the OD and ID of the pipe and pumping the heated phosphate solution over the connection. This offers three primary advantages; the system is compact and is easy to relocate, it can function with any length of pipe and it fully submerges the connection thus providing a more consistent application compared to spray methods. The system is designed to tap into existing phosphate tanks, which makes it an excellent addition to existing processes.

Safety

Hub City has provided operating procedures and safety information to ensure the wellbeing of both the operator and the equipment.

This operating manual contains important safety information - please read it thoroughly.

Safety Considerations:

- Surfaces on this product can reach very high temperatures when in use. Always use proper PPE and avoid touching surfaces.
- Never let phosphate solution come into contact with skin
- Obey all equipment safety labels.



Machine Specifications

Standard Features

- (2) Hand held phosphate applicators
- (1) Skid mounted pump
- (1) Reservoir connection kit
- (4) 50' supply/return hoses

Optional Features

- Various connection seal sizes
- Heated phosphate tank

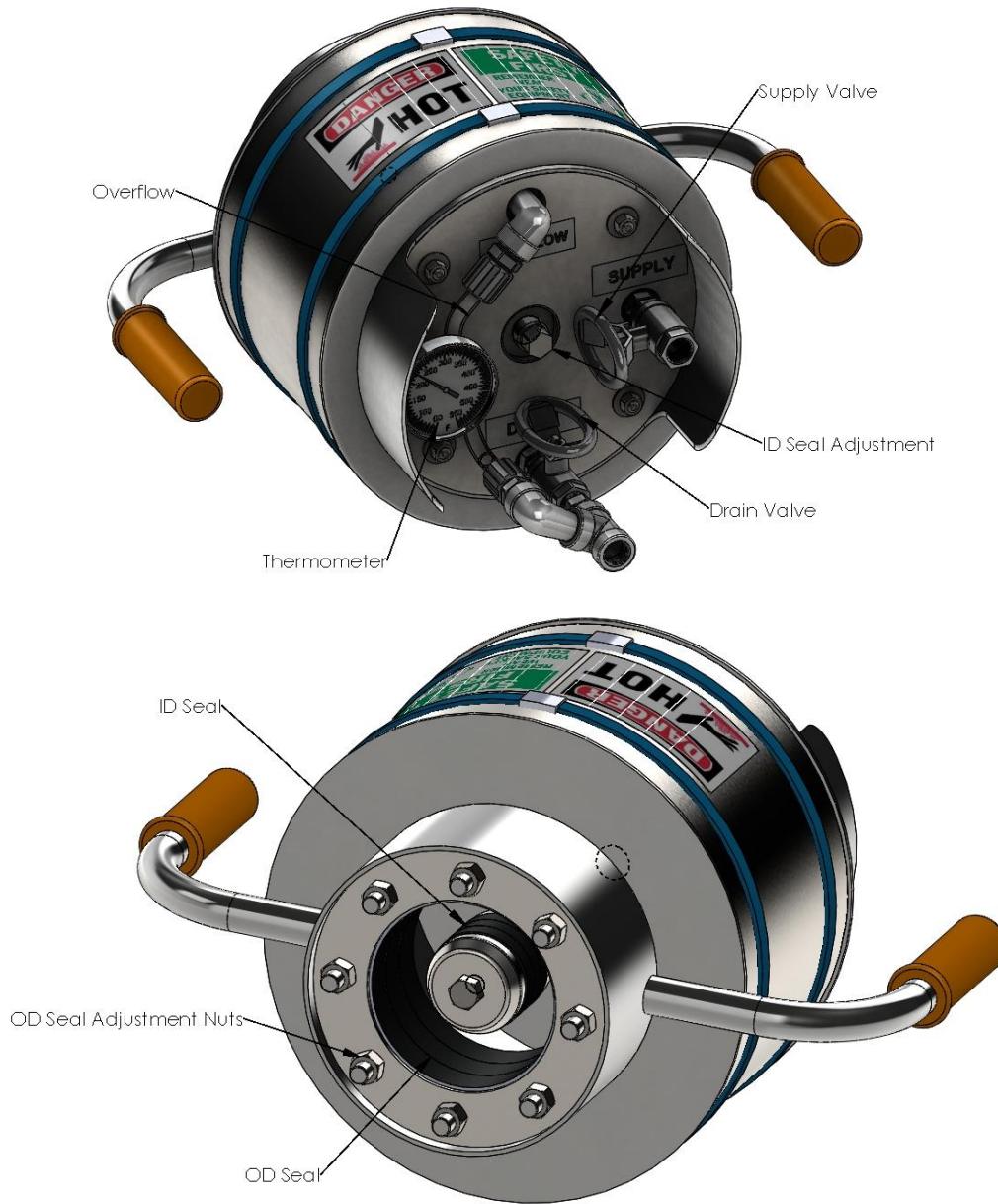
Specifications

- Specification 1 (capacity, range, intended use etc.)
- Dimensions
 - Phosphate applicator
 - Outside Diameter 13'-0"
 - Length 1'-3"
 - Weight 50 lbs per applicator

Plant Requirements

- Electrical 120V, Single Phase, 60 Hz 20A (Auxiliary heater)
230/480V, 3 Phase, 60 Hz (If Hub City Phosphate Reservoir is provided)
- Compressed air 40 PSI @ 28 CFM
- Rack height Any

Controls



	<u>Function</u>	<u>Description</u>
1	Overflow	Visual indicator of flow thru applicator
2	Supply Valve	Opens & closes inlet (Also turns pump on and off)
3	Drain Valve	Opens & closes drain line
4	Thermometer	Indicates current temperature inside applicator
5	ID Seal Adjustment	Tightens & loosens ID seal
6	OD Seal Adjustment Nuts	Tightens & loosens OD seal
7	ID Seal	Rubber gasket that seals against ID of pipe
	OD Seal	Rubber gasket that seals against OD of pipe

Equipment Layout



Process

1. Put on proper PPE. (Safety goggles, heat resistant gloves, work apron)
2. Position work pieces as needed.
3. Ensure phosphate solution is within requirements.
4. Ensure hoses are connected to their appropriate ports.
5. Loosen OD and ID seal adjustments.
6. Ensure Supply Valve is closed.
7. Plug in auxiliary heater.
8. Position drip pan under work piece(s).
9. Slide Phosphate Applicator(s) over pipe connection(s) until the connection hits the back plate, then back out slightly (1/2"-1")
10. Position Applicator(s) so that seals are in contact with an effective sealing surface.
11. Tighten OD then ID Seal Adjustments. (Lubricate threads before torquing)
 - a. OD Seal Adjustments to be torqued using proper 8 bolt flange sequence (See Figure 1)
12. Open pump valve
13. Close Drain Valve.
14. Open Supply Valve.
15. Verify level by viewing Overflow Hose.
16. Close Supply Valve.
17. Verify Temperature is within requirements after a few moments.
18. Allow phosphate to sit for appropriate time.
19. Open Drain Valve and allow Applicator(s) to drain.
20. Loosen Seal Adjustments.
21. Remove Applicator(s) and repeat process as needed.

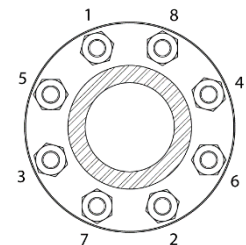


Figure 1

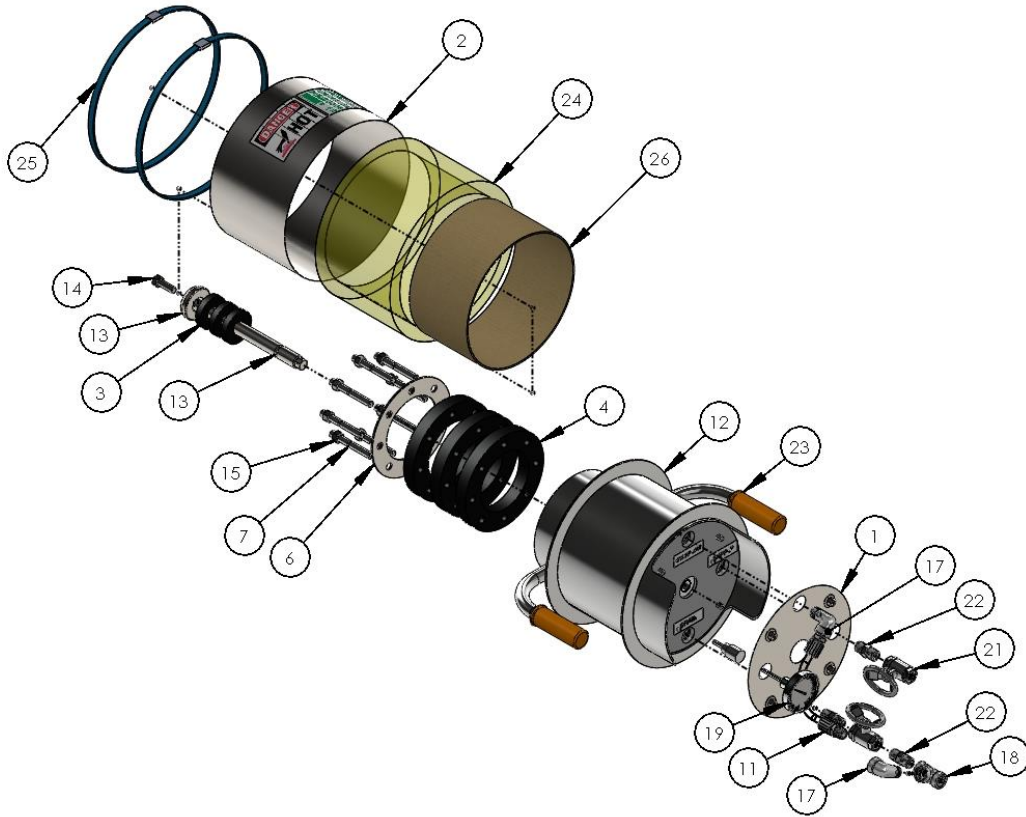
Troubleshooting Guide

Problem	Corrective Action
Pump will not start	<ul style="list-style-type: none"> • Ensure proper air pressure (30 PSI Min) • Ensure Supply Valve is open • Check for blocked hoses
Phosphate Applicator is leaking	<ul style="list-style-type: none"> • Ensure debris is not under sealing surfaces • Check Seal Adjustments for proper torque • Verify proper seal size is being used
Phosphate solution temperature is too low inside Applicator	<ul style="list-style-type: none"> • Check temperature in reservoir • Ensure insulation has not been damaged or removed • Verify band heater is on and functioning properly
Connection is not being fully covered	<ul style="list-style-type: none"> • Ensure Applicator is positioned properly on connection • Ensure flow is present by viewing Overflow Hose

Parts List

Phosphate Applicator

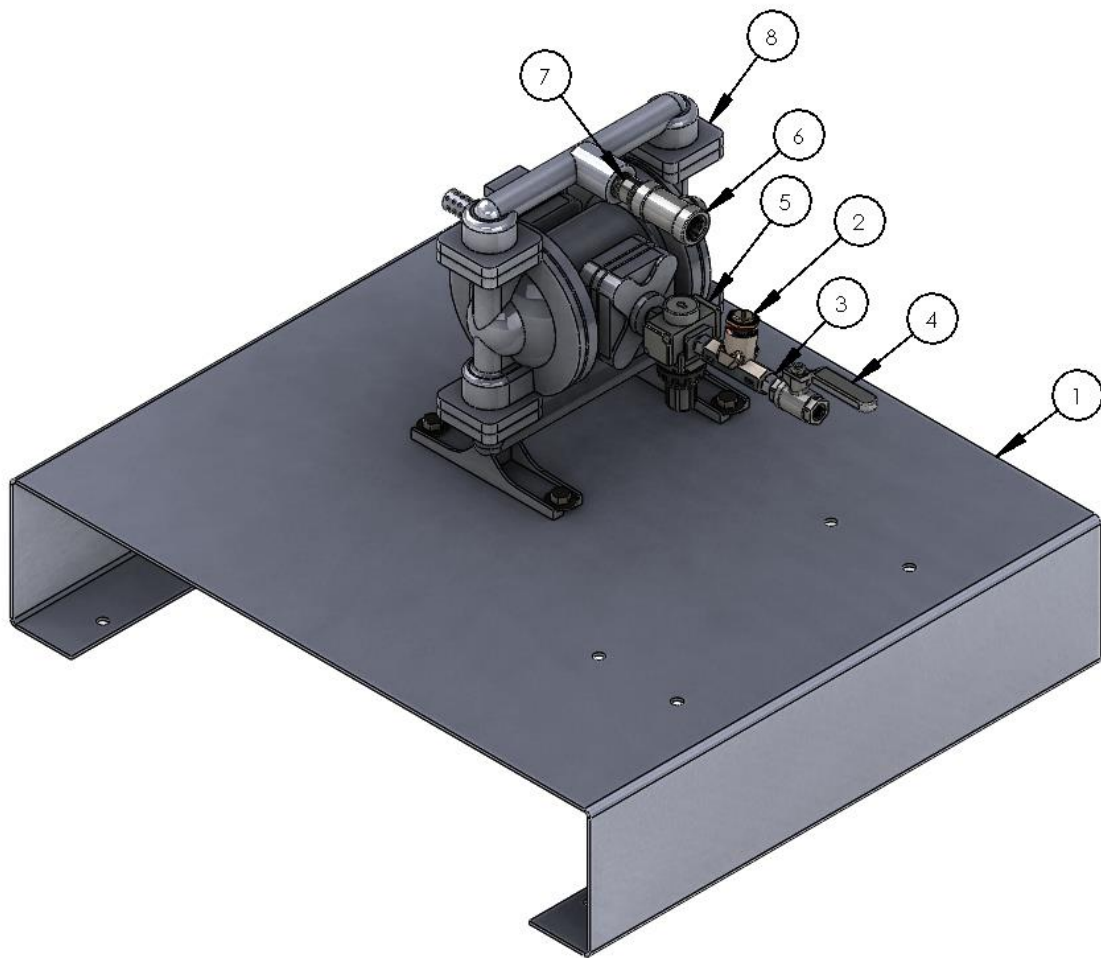
Revision: A



Item #	Part #	Description	Quantity
1	111-150-001-XXX	SS JACKETING BACK PLATE 45755K27	1
2	111-150-002-XXX	SS JACKETING FOR PIPE 45755K27	1
3	111-150-003-209	ID SEAL, XT39	3
4	111-150-004-209	OD SEAL, XT39	3
5	111-150-005-XXX	PLATE INSULATION 9333K71	1
6	111-150-015-016	OD SEAL PLATE	1
7	111-150-016-016	OD STUD	8
11	111-610-030-00	47814, HOSE 47813 TBD" LG, 47814	1
12	111-700-101-00	CAN FAB ASM	1
13	111-700-102-00	ID ROD FAB	1
14	14506	BOLT, HHCS, .50" X 1.50" SS	1
15	16487	NUT, HEX, .375" NC	12
16	17656	WASHER, FLAT, .375"	4
17	47790	STREET ELBOW, .50" 90° SS F X M 150PSI	2
18	47793	TEE, 316SS, .50 150PSI	1
19	47798	THERMOMETER, 3" X 2.50" 38295K11 50°-300°	1
20	47799	THERMOWELL, .50" X 2.50" 3957K69	1
21	47802	VALVE, BALL, .50" 316SS OVAL HANDLE	2
22	47803	NIPPLE, .50" X .50 316SS HEX	3
23	47804	GRIP, 1" X 4.50" HIGHTEMP SILICON 5271T1	2
24	47805	INSULATION, 10.75"OD F/10"PIPE 1"THICK	1
25	47806	BANDING, .50W X .020T X 16"OD SS 7760K13	2
26	47807	HEATER, 8063T531 10"-12"DIA 120V 8063T53	1

Pump Skid

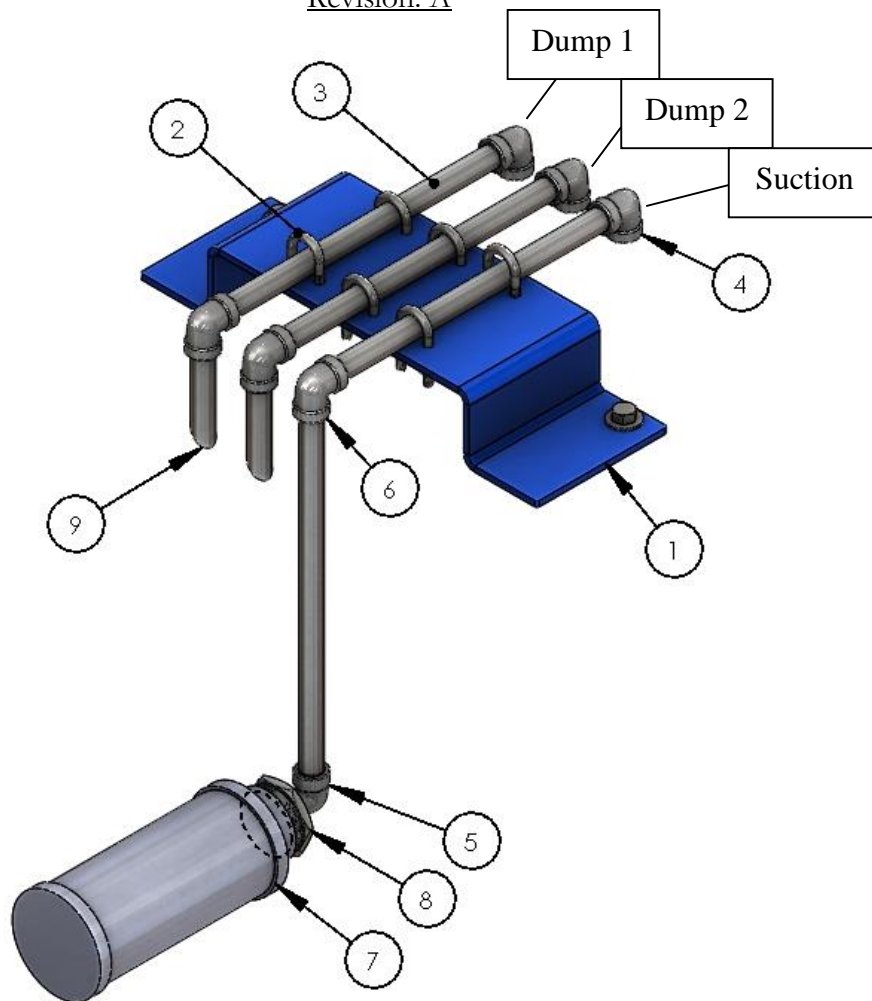
Revision: A



Item #	Part #	Description	Quantity
1	111-110-008-018	PPC SKID	1
2	14007	AIR FLOW CONTROL VALVE, 1/4 in.	1
3	15600	# 4 NPT NIPPLE, (2083-4-4)	3
4	17613	VALVE, BALL, .25" FULL PORT	1
5	46481	AR20-N02E-Z REGULATOR	1
6	47793	TEE, 316SS, .50 150PSI	1
7	47794	NIPPLE, .50" X 2" 316/316L SS	1
8	47795	PUMP,15GPM PTFE DIAPHRAGM 41655K27	1
9	47811	SUPPLY/DRAIN HOSE	4

Tank Suction Kit

Revision: A

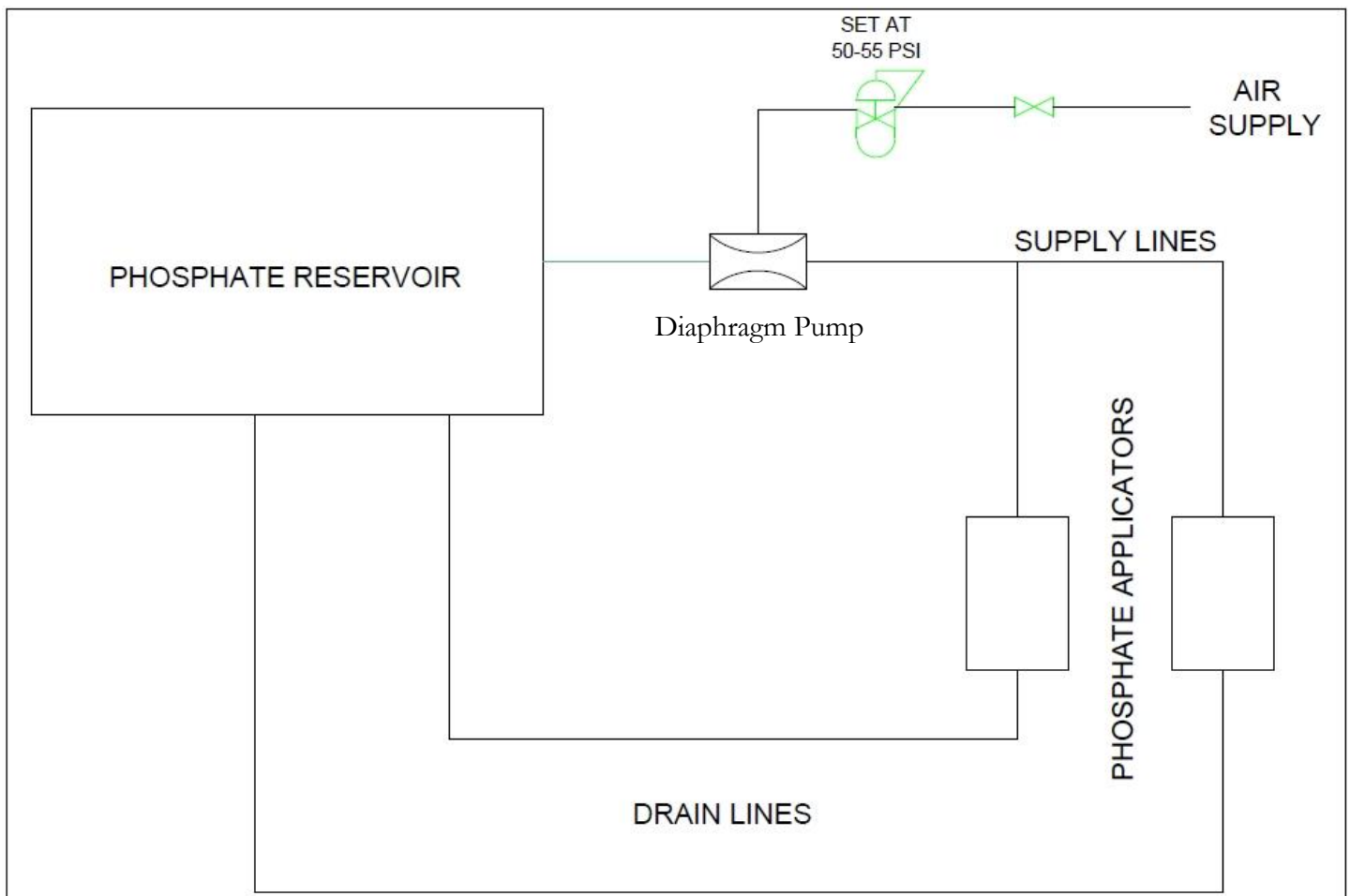


Item #	Part #	Description	Quantity
1	111-110-009-016	PIPE MOUNT PLATE	1
2	111-602-007-016	SS PIPE DUMP LINE	2
3	47787	STRAINER, 2"NPTF 304SS 4455K46 60SCREEN	1
4	47788	BUSHING, 2" X .50" 316 SS	1
5	47790	STREET ELBOW, .50" 90° SS F X M 150PSI	1
6	47791	ELBOW, .50" 90° SS 150PSI	6
7	47792	U-BOLT, .3125"-18 X .50" SS 950LB LOAD	6
8	47796	NIPPLE, .50" X 16" 316/316L SS	1
9	47797	NIPPLE, .50" X 12" 316/316L SS	3

Recommended Spare Parts

Level A Items (Stocked On Site)		
Part #	Description	Qty
47804	GRIP, HIGH TEMP SILICON	2
47798	THERMOMETER, 3" X 2.50" 50°-300°	1
47814	FITG, PFA .50 TUBE X MALE 125PSI	2
47805	INSULATION	1
47806	BANDING, .50W X .020T X 16"OD	2
111-150-004-209	OD SEAL	3
111-150-003-209	ID SEAL	3
Level B Items (1-3 Day Delivery)		
47787	STRAINER, 2"NPTF 304SS	1
47807	HEATER, 120V	1
Level C Items (0-120 Day Delivery)		
47795	PUMP, 15GPM PTFE DIAPHRAGM	1

Hydraulic/Pneumatic Schematic



Preventative Maintenance



Portable Phosphate System Daily Preventative Maintenance

Company: _____
 Location: _____
 Machine No.: _____
 Week of: _____

Instructions:
 Inspect each item at the start of each shift - initial next to block after task is complete
 For more detailed information consult operators manual.

Day	Inspect Phosphate Applicator (1)Check seals for wear (2)Check heater wires for wear (3)Check applicator for corrosion (4)Check valves for functionality	Inspect phosphate system (1)check transfer oil level (2)check transfer oil pump for leaks and proper operation (3)check using the balls in tank (4)check gasket between tank not leaking	Inspect Pump (1) check for loose fittings and leaks (2) Check for wear on parts	Inspect Hoses (1)Ensure hoses flow unrestricted (2)Flush lines after use						
1										
2										
3										
4										
5										
6										
7										

Comments:
