

INSTALLATION, OPERATION, SERVICE & REPAIR PARTS MANUAL

FOR

RED JACKET “Extracta”[®] Remote Gasoline Pumps Models P75S17-3, P150S17-3 & X4P150S17 380 Volt, 3 Phase, 50 Hertz



by  **VEEDER-ROOT**

051-138 Rev. C

ELECTRICAL SERVICE INFORMATION

Model No.	HP	Volts		Max. Load Amps	Locked Rotor Amps	Winding Resistance (Ohms)		
		Min.	Max.			Blk-Orange	Red-Orange	Black-Red
P75S17-3	3/4	350	415	2.2	11.0	23.2 - 25.6	23.2 - 25.6	23.2 - 25.6
P150S17-3	1-1/2	350	415	3.8	15.8	11.9 - 13.2	11.9 - 13.2	11.9 - 13.2
X4P150S17	1-1/2	350	415	3.8	15.8	11.9 - 13.2	11.9 - 13.2	11.9 - 13.2

“All installation work must comply with local code requirements. If no other codes apply, the latest issue of the National Electrical Code should be followed.”

READ THIS SECTION BEFORE PROCEEDING

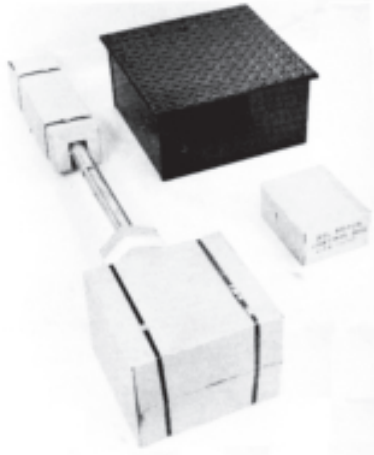
1. Red Jacket gasoline pumps are designed to pump gasoline or diesel fuels only, having a maximum specific gravity of .95 and maximum viscosity of 70 S.S.U. at 15°C (the approximate weight and viscosity of diesel fuel). Red Jacket bears no responsibility if the installation is outside these parameters.
2. Units should be installed with manholes or with the packer head above grade to allow for ease in servicing, refer to page 8.
3. Unit is cooled and lubricated by product pumped. Minimum flow required is 10% of maximum capability. Minimum flow for model P75S17-3 and X4P150S17 is 20 LPM. For model P150S17-3, minimum flow required is 25 LPM.

Never wire a submersible pump to run continuously at less than minimum flow rate. The units are designed to operate continuously at or above minimum flow rate, or with an intermittent duty cycle, not to exceed 20 on/off cycles per hour. Should it be necessary to operate a unit continuously, a bypass pipe should be installed in the piping to allow for continual product recirculation back into the storage tank. A gate valve or some type of throttling device should be installed in the bypass piping to insure that the minimum flow rate is being pumped at all times.

4. Red Jacket gasoline pumps are not designed to handle abrasives or foreign particles in the product being pumped.
5. Product temperature must never exceed 30°C (85°F) as the submersible motors are equipped with thermal overload protector.
6. Pumping water will overload the motor and damage the bearings.
7. Red Jacket gasoline pumps are designed for class 1 Group D atmosphere.
8. The pump units are only to be used in a vertical altitude.

A. INSTALLING PUMPING UNIT

Note: Unit may be submerged in water without damage. Pumping water will damage motor bearings.



1. EXTRACTA pump with manhole and optional control box.



2. Install pump in 4" tank opening. Use approved non-setting thread sealant.



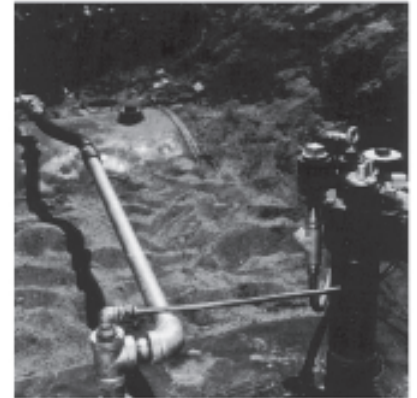
3. Tighten 4" riser pipe in tank.



4. Line up discharge outlet. Turn in "tightening" direction only.

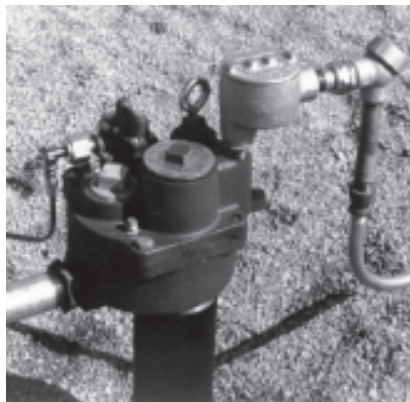
NON-SYPHON SYSTEMS: Omit this step.

SYPHON SYSTEMS: Remove the pipe plug from the syphon check valve. Connect 3/8" copper tubing to highest point on syphon loop. Minimum size for syphon pipe is 1-1/2 inches. (See photo 5)

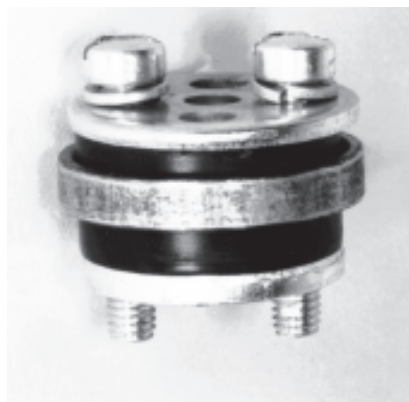


5. Typical piping with syphon.

B. WIRING



1. Connect electrical conduit through approved fittings to junction box.



2. Install compression ring over conduit seal.



3. Remove cover from junction box. Feed the 3 motor leads through compression seal. Install compression seal in hole in junction box and tighten two screws.

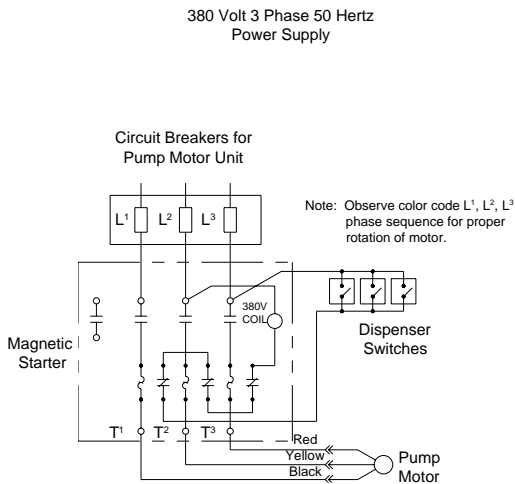
B. WIRING (cont'd)

- Connect the three color coded wires from the incoming power supply to the appropriate motor leads. Line 1 from the power supply must be connected to the black motor lead, line 2 to the yellow motor lead and line 3 to the red motor lead. If this is not followed, the motor may rotate in the wrong direction.



- Once the wiring is completed and the tank is filled with fuel, a performance test should be made to verify that the motor is rotating in the proper direction. This can be done by installing a pressure gauge in the line test port, located in the pump head (packer). Start the submersible pump and record the pressure reading. Next, disconnect the power to the magnetic starter. Move the black motor lead from L¹ to L², and the yellow motor lead from L² to L¹. This will reverse the rotation of the motor. Re-connect the power to the magnetic starter. Start the pump and again record the pressure. The wiring which gives the highest pressure reading indicates the correct motor rotation and should be used.

Suggested Wiring Diagram for Individual Pump Motor Units



Warning:
The control box must be grounded for personal safety. Refer to local codes for proper grounding procedures.

WIRING FOR DUAL MANIFOLD SYSTEMS

Installing dual submersibles manifolded in the same system.

This type of system is often used when greater flow rates are needed. If installed according to the illustration below (Fig. 1), manifolded systems also offer back-up support in that operations could continue should one unit fail.

The check valves shown installed in the discharge line of each pump are necessary to prevent product from being pumped through the pressure relief system of the adjacent pump, if that pump is not running. This is because the expansion relief valve operates at below pump pressures. If check valves without pressure relief were used, there would be no provision for thermal expansion between the valves and the dispensers.

This diagram (Fig 2) shows the wiring allowing both submersibles to operate simultaneously with any combination of dispensers turned on. To operate individually, the appropriate toggle switch, located externally on the side of the control box must be turned off manually. The check valves and 220/240 volt relay are not available from Red Jacket and should be purchased locally.

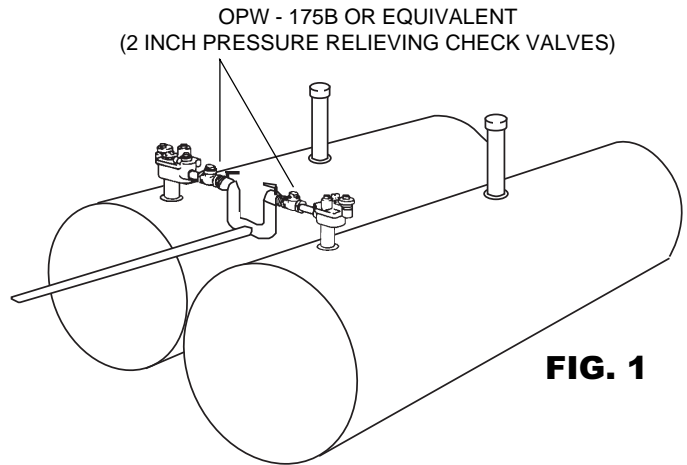
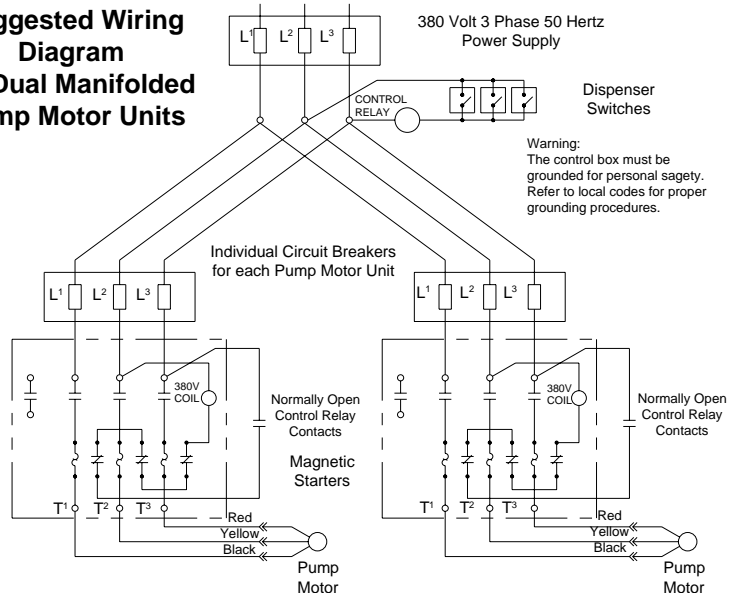


FIG. 1

Suggested Wiring Diagram for Dual Manifolded Pump Motor Units



Warning:
The control box must be grounded for personal safety. Refer to local codes for proper grounding procedures.

Note: Observe color code L¹, L², L³ phase sequence for proper rotation of motor.

FIG. 2

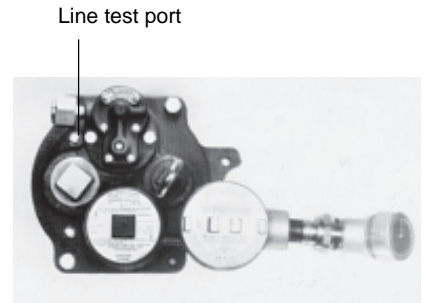
C. TESTING THE INSTALLATION



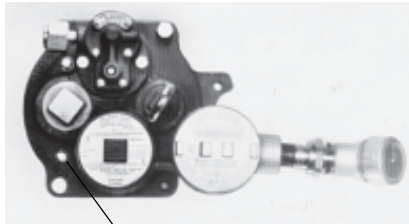
1. **TO TEST PIPING.** Block lines at each dispenser. (Trip dispenser shear valve.) Remove line test plug for this test.



2. Close pump check valve by turning the vent closing screw as far down as possible. **CAUTION:** Excessive pressure may damage check valve pad.



3. Apply line test pressure at line test port.



4. **TO TEST TANK.** With check valve closed (Ref. #2 above), apply pressure to tank at tank test port.



5. After completion of line and/or tank tests, release pressure by turning the vent closing screw as far up as possible.

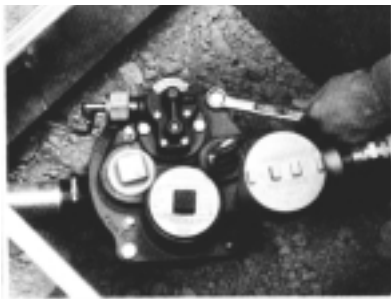


6. After the installation is completed and tests have been made; purge system of air by pumping at least 60 liters through each dispenser. Begin with the dispenser furthest from pump and work toward the pump.

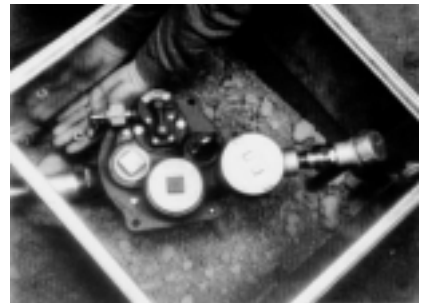
D. REMOVING THE PUMPING UNIT



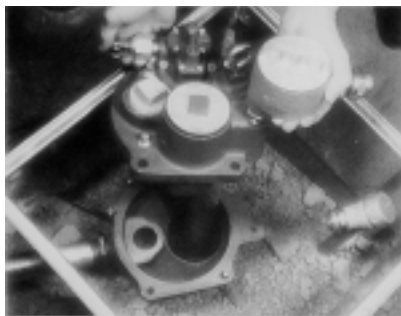
1. **ALWAYS DISCONNECT** the power.



2. Remove two lockdown bolts.



3. **IF SYPHON SYSTEM,** disconnect syphon tubing.



4. Remove junction box cover and cut 3 electrical splices, disconnect electrical conduit. Lift unit. Replace unit by reversing these steps.

E. REPLACING THE PUMP MOTOR ASSEMBLY



1. Remove the four screws holding motor to the discharge head.

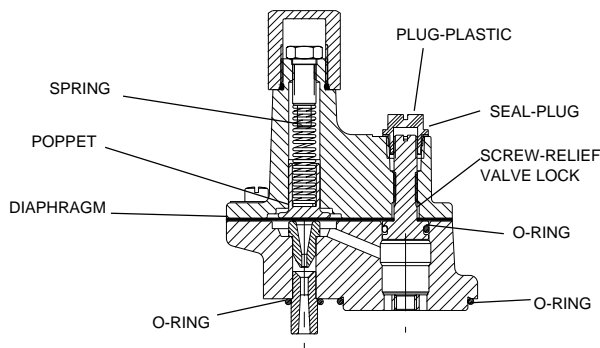


2. Rock unit while pulling away from discharge head until free.



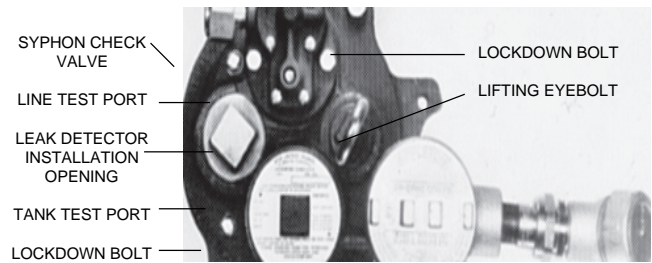
3. **TO RE-ASSEMBLE:** Replace gasket, align dowel pin, draw in place with cap screws.

F. FUNCTIONAL ELEMENT ASSEMBLY



To remove functional element assembly: disconnect syphon tubing (if syphon installation). Remove two cap screws. Disassemble to check and clean.

G. TOP VIEW OF DISCHARGE MANIFOLD

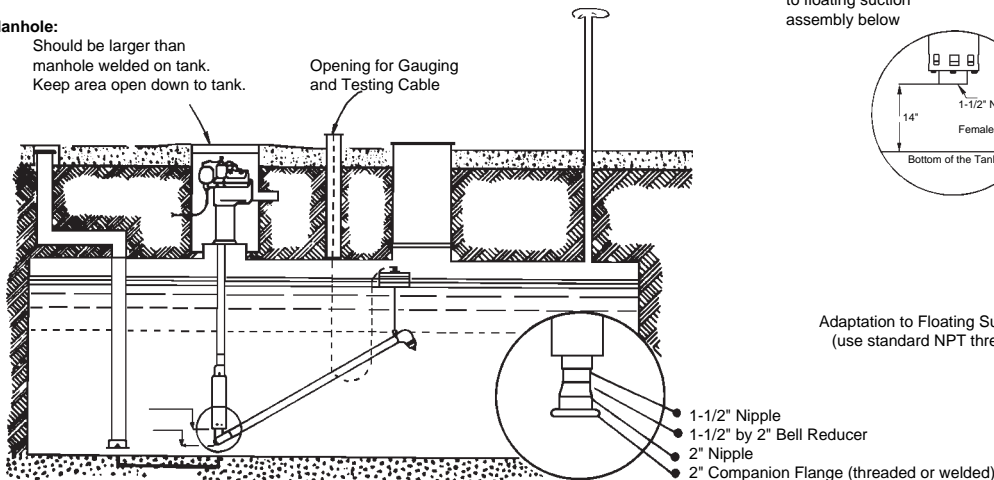


H. RECOMMENDED FLOATING SUCTION INSTALLATION

Manhole:

Should be larger than manhole welded on tank. Keep area open down to tank.

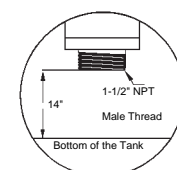
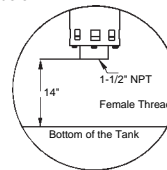
Opening for Gauging and Testing Cable



- 1-1/2" Nipple
- 1-1/2" by 2" Bell Reducer
- 2" Nipple
- 2" Companion Flange (threaded or welded)

- The floating suction arm can be mounted to pump previous to installing in tank

See example of adaptation to floating suction assembly below



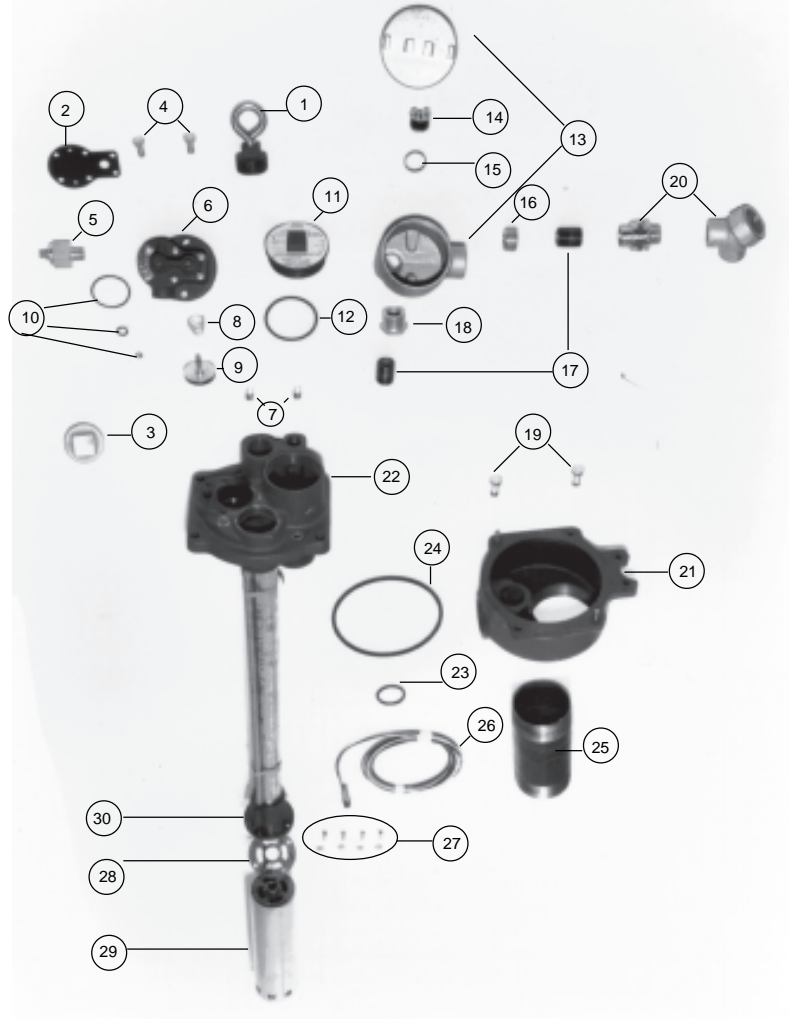
Adaptation to Floating Suction Assembly (use standard NPT threaded fittings).

- Easy service access is provided by unbolting manhole lid through which pump is mounted and removing entire assembly

Use proper thread sealant and insert gasket between flanges of floating suction and pump. This prevents hindrance to pump performance when product level is below this point.

PARTS LIST

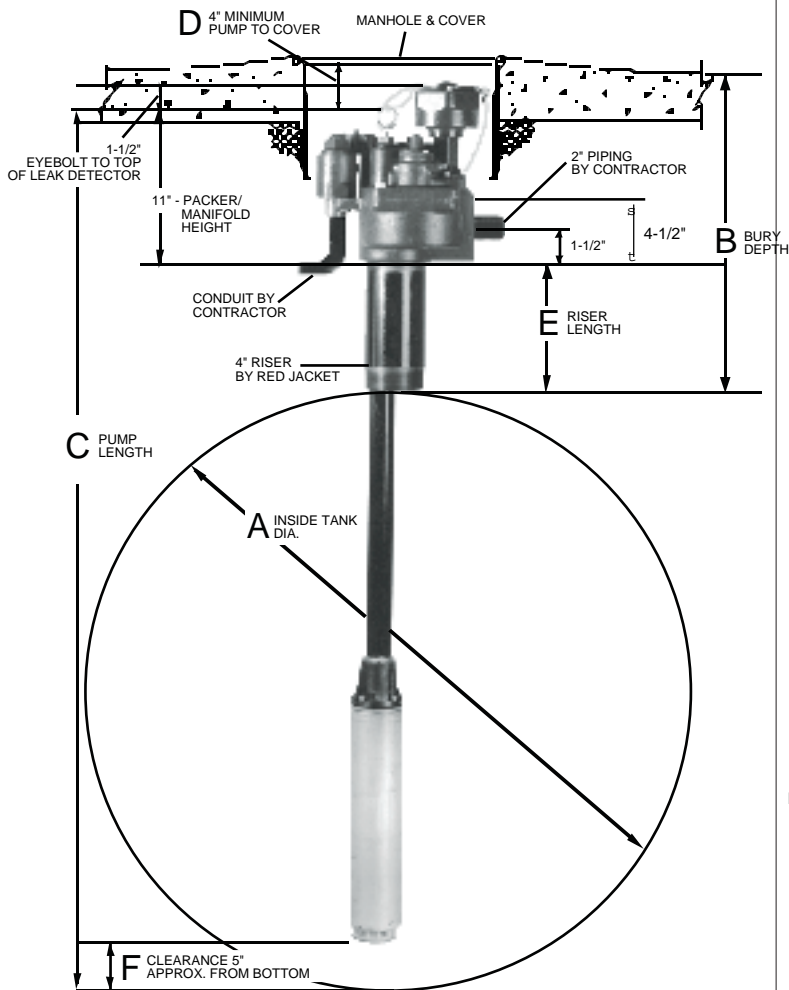
MODELS P75S17-3, P150S17-3 & X4P150S17



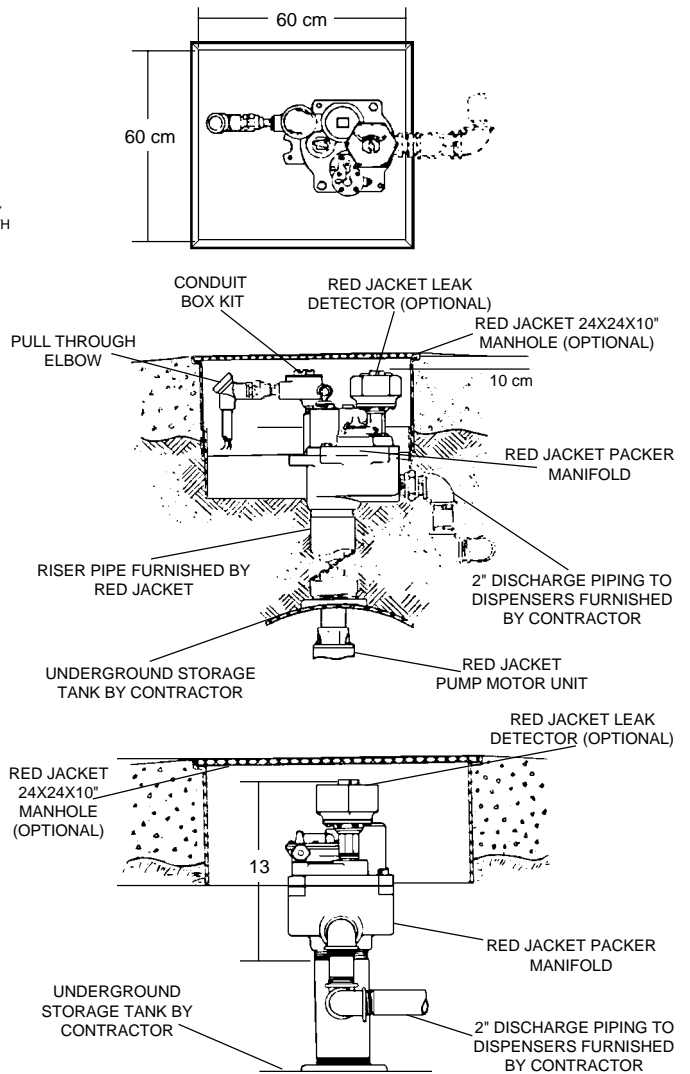
Key No.	Part No.	Part Description	Qt'y. Req'd.
1	139-040-4	Eye Bolt Assembly	1
2	017-165-1	Diaphragm	1
3	027-086-1	Salv. Steel Pipe Plug	2
4	026-176-1	Steel Hex Hd. Cap Screw	2
5	188-079-5	Siphon Check Valve Assy.	1
6	141-062-5	Functional Element Assy. with "O" Rings	1
7	027-031-1	Galv. Steel Pipe Plug	2
8	080-125-1	Check Valve Spring	1
9	188-214-1	Check Valve Assembly	1
10	172-003-5	Functional Element "O" Ring Package	1
11	013-231-3	Three Phase Cover	1
12	072-190-1	"O" Ring Capacitor Cover Assembly	1
13	008-483-1	Conduit Box	1
14	110-052-4	Conduit Seal Assy.	1
15	079-601-1	Conduit Sleeve Bushing	1
16	027-203-1	Bushing Face Fitting	1
17	027-073-1	3/4" NPT Close Nipple	2

Key No.	Part No.	Part Description	Qt'y. Req'd.
18	027-202-1	3/4" x 1" NPT Fitting	1
19	026-205-1	Steel Hex Hd. Cap Screws	2
20	880-008-1	Pull Through Electrical Elbow	1
21	151-002-4	Manifold Assembly	1
22	164-027-4	Packer	1
23	072-240-1	"O" Ring Packer Discharge	1
24	072-189-1	"O" Ring Packer Manifold	1
25	065-150-1	Riser Pipe (Specify Lgth.)	1
26	144-090-5	Plug & Lead Assembly	1
26A	144-091-5	Plug & Lead Assembly 17 ft.	1
27	026-355-3	Stainless Steel Hex Hd. Cap Screws with Lockwashers	4
28	031-136-1	Discharge Head Gasket	1
29	852-058-5	UMP75S17-3 Pump/Motor Repl.	1
	852-059-5	UMP150S17-3 Pump/Motor Repl.	1
	852-155-5	UMPX4P150S17 Pump/motor Repl	1
30	136-056-4	Discharge Head Assy.	1
N/S	144-087-5	Conduit Seal Assembly	1
N/S	144-106-5	Syphon Retrofit Kit (when not ordered with pump)	1

TABLE OF DIMENSIONS FOR PUMP SELECTION



LEAK DETECTOR INSTALLATION AND MANIFOLD DIMENSIONS



"B" Bury Depth	"A" Tank Diameter	Fiberglass															
		42" 3'6"	46" 3'10"	48" 4'0"	64" 5'4"	72" 6'0"	75 1/2" 6'3 1/2"	84" 7'0"	90" 7'6"	92" 7'8"	95" 7'11"	96" 8'0"	99 1/2" 8'3 1/2"	108" 9'0"	120" 10'0"	126" 10'6"	
2'0"	"C" Pump Length	0409	0501	0501	0607	0701	0707	0801	0809	0809	0901	0901	0907	0909	1001	1101	1109
24"	"D" Pump to Cover	4	4	6	4	6	4	6	4	6	5	6	4	6	6	4	4
	"E" Riser Length	9	9	7	9	7	9	7	9	7	8	7	9	7	7	9	9
2'6"	"C" Pump Length	0501	0507	0509	0701	0709	0801	0809	0901	0901	0907	0909	1001	1009	1109	1201	1201
	"D" Pump to Cover	6	4	4	4	4	4	4	6	8	5	4	4	4	4	6	6
	"E" Riser Length	13	15	15	15	15	15	15	13	11	13	15	15	15	15	13	13
3'0"	"C" Pump Length	0509	0601	0601	0707	0801	0807	0901	0909	0909	1001	1001	1007	1101	1201	1209	1209
36"	"D" Pump to Cover	4	4	6	4	6	4	6	4	6	5	6	4	6	6	4	4
	"E" Riser Length	21	21	19	21	19	21	19	21	19	20	19	21	19	19	21	21
3'6"	"C" Pump Length	0601	0607	0609	0801	0809	0901	0909	1001	1001	1007	1009	1101	1109	1209	1301	1301
42"	"D" Pump to Cover	6	4	4	4	4	4	4	6	8	5	4	4	4	4	6	6
	"E" Riser Length	25	27	27	27	27	27	27	25	23	26	27	27	27	27	25	25
4'0"	"C" Pump Length	0609	0701	0701	0807	0901	0907	1001	1009	1009	1101	1101	1107	1201	1301	1309	1309
48"	"D" Pump to Cover	4	4	6	4	6	4	6	4	6	5	6	4	6	6	4	4
	"E" Riser Length	33	33	31	33	31	33	31	33	31	32	31	33	31	31	33	33
4'6"	"C" Pump Length	0701	0707	0709	0901	0909	1001	1009	1101	1101	1107	1109	1201	1209	1309	1401	1401
54"	"D" Pump to Cover	6	4	4	4	4	4	4	6	8	5	4	4	4	4	6	6
	"E" Riser Length	37	39	39	39	39	39	39	37	35	38	39	39	39	39	37	37

NOTE:

Fiberglass tanks have substantially smaller inside tank diameters than steel tanks of the same outside diameter. It is therefore important to specify "fiberglass" tanks when used and include the inside tank diameter.