



Geotech Portable Bladder Pumps

Installation and Operation Manual



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Chapter 1: System Description

Function and Theory

Geotech's pneumatic Portable Bladder Pumps operate with a unique action, ideal for both gentle low-flow sampling and high flow rate purging. Timed on/off cycles of compressed air alternately squeeze the flexible bladder to displace water out of the pump to the surface and exhaust allowing the pump to refill.

Fluid enters the pump through the fluid inlet check valve at the bottom of the pump body, via hydrostatic pressure (automatically by submergence). This means the pump must be submerged to operate. Then the internal part of the bladder then fills with fluid. Compressed air enters the space between the bladder and the interior of the pump housing. The inlet check valve closes and the discharge check valve (top) opens. Compressed air squeezes the bladder, pushing the fluid to the surface. The discharge check valve prevents back flow from the discharge tubing as the inlet check valve opens again to fill the pump. Driven by the GEOCONTROL PRO or GEOCONTROL II, this cycle automatically repeats.

Note: Compressed air does not contact the sample! The bladder prevents contact between the pump drive air and the sample.

System Components

Geotech's Portable Bladder Pumps consist of four components as follows: The Bladder Assembly, the External Pump Housing, and the Inlet Screen Assembly.

Chapter 2: System Maintenance

Bladder Removal Steps:

Remove the lower PTFE™ compression ring #21150042 by pulling off end of the internal center tube assembly #21150039.

Pull the lower end of the bladder towards the middle of the internal center tube assembly and remove O-ring #11150049 from the lower end of the tube.



Remove the upper PTFE™ compression ring #21150042 and slide the ring off of the end of the internal tube weldment assembly #21150039.

Slide the bladder #21150054 off of the internal center tube weldment assembly #21150039, at this point the O-ring #11150049 on the upper end can be replaced.



Note: Part numbers listed in the assembly procedure described above pertains only to the 1.66 Portable Bladder Pump. The .675 and .850 Portable Bladder Pumps assemble similarly, however, with different part numbers which can be found in the following sections.

Reassembly Steps:

Install O-ring #11150319 onto upper end of the center tube weldment assembly #21150039.

Slide bladder #11150042 on to the center tube assembly and over the O-ring #11150049 on the upper end of the center tube assembly. Be careful not to roll the O-ring when sliding the bladder over this end.

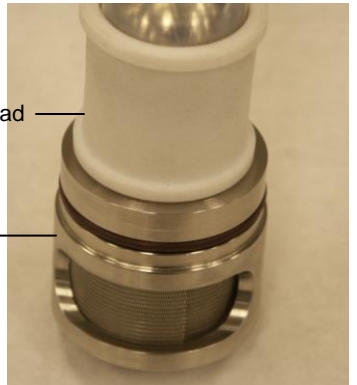
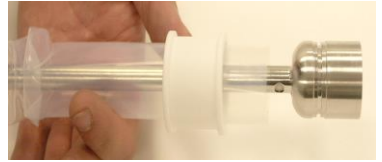
Slide a PTFE™ compression ring #11150042 over the bladder and push down over bladder and upper end of the center tube.

With the upper end of the bladder secured by the PTFE™ compression ring slide the second compression ring over the bladder about midway down the assembly.

Slide the bladder up, beyond the bottom of the assembly, exposing the lower end of the center tube and install the O-ring #11150319 into the groove on the lower end.

Slide the bladder back over the O-ring being careful not to roll the O-ring.

Now slide the PTFE™ compression ring over the bladder until it seats flush with the bottom of the center tube assembly.



Chapter 3: System Specifications

| | 1.66 | .850 | .675 |
|-------------------------|-------------|-----------------|---------------------------|
| Pump Housing | SS, 316 | SS, 316 | SS, 316 |
| Pump Ends | | SS, 316 | SS, 316 SS, 316 |
| Bladder Material | Virgin PTFE | Virgin PTFE | Virgin PTFE |
| Outer Diameter | 1.66" | .850" | .675" |
| Length w/screen | 19" | 18 5/8" | 18 3/4" |
| Weight | | 3.0 lbs | 1.1 lbs .83 lbs |
| Volume/Cycle | 160 mL | 45 mL | 36.4 mL |
| Min. Well I.D. | | 2" | 1" .75" |
| Max. Operating Pressure | | 100 PSI | 100 PSI 100 PSI |
| Min. Operating Pressure | | 5 PSI (ash)* | 5 PSI (ash)* 5 PSI (ash)* |
| Maximum Sampling Depth | | 200' | 200' 200' |
| | | Tubing Size | |
| | Air | | Discharge |
| 1.66 | | .17 ID x .25 OD | .25 ID x .375 OD |
| .850 | | .17 ID x .25 OD | .17 ID x .25 OD |
| .675 | | .17 ID x .25 OD | .17 ID x .25 OD |

*ash = above static head

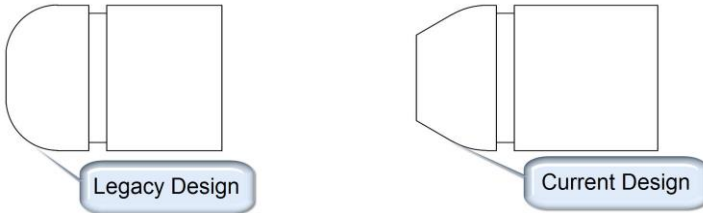
Chapter 4: Replacement Parts List

MODEL 1.66" PORTABLE BLADDER PUMP - XXXX

| <u>QTY/ASM</u> | <u>DESCRIPTION</u> | <u>PART NO.</u> |
|----------------|--|-----------------|
| 1 | Bladder, 1.66" Bladder Pump | 21150054 |
| 1 | Housing, 1.66" Bladder Pump | 21150041 |
| 1 | Lower Cap Checkball Plug, 1.66" Bladder Pump | xxxx |
| 2 | Hose barb, Air-In | 21150019 |
| 1 | Hose barb, Air-Out | 11150106 |
| 2 | PTFE Compression Ring | 21150042 |
| 1 | Checkball, Upper | 17500081 |
| 2 | O-Ring, Internal Weldment | xxxx |
| 1 | O-Ring, Upper Cap | 11150318 |
| 2 | O-Ring, Lower Cap | 17500118 |
| 1 | O-Ring, Lower Cap Checkball Plug | 17500119 |
| 1 | Krytox Lubricant | 12103157 |
| 1 | Safety Cable Hanger Assy | xxxx |
| 1 | Assembly, Weldment, 1.66" Bladder Pump | xxxx |
| 1 | Assembly, Bottom Intake, 1.66" Bladder Pump | xxxx |
| 1 | Cap Lower, 1.66 Bladder Pump | |
| 1 | Checkball, Lower | |
| 1 | Inlet Screen | |
| 1 | Shutoff Disc, Bottom | |
| 1 | Snap Ring, Internal | |
| 2 | O-Ring, Cap Lower | |
| 1 | O-Ring, Cap Housing | |
| 1 | Spare Parts Kit After 8/1/2010 | xxxx |
| 1 | Spare Parts Before 8/1/2010 * | xxxx |
| 1 | O-Ring Kit After 8/1/2010 | xxxx |
| 1 | O-Ring Kit Before 8/1/2010 * | xxxx |

* Denote previous version pump. This requires bladder pump manual part number 11150272.

1.66 Portable Bladder Pump Service Kits



Significant improvement modifications were made to the 1.66 portable bladder pump. As of August 1st, 2010, this manual, manual number XXXXX, is for the current design as depicted in the illustration above showing the difference between the shape of the lower head. Manual part number 11150272 will pertain ALL previous revisions of the 1.66 portable bladder pump.

| | QTY | Part No. | Description |
|-------------------|-----|----------|---|
| O-RING KIT | | 91150010 | 1.66 Portable Bladder Pump O-Ring Kit for Current Design Pumps |
| | 2 | 11150318 | O-Ring, Viton, 36mm x 2.5mm |
| | 2 | 11150319 | O-Ring, Viton, 23.5mm x 2mm |
| | 1 | 17500118 | O-Ring, Viton, #019 |
| | 1 | 17500119 | O-Ring, Viton, #014 |

| | | | |
|------------------------|----------|---------------------|--|
| SPARE PARTS KIT | | 51150049 | 1.66 Portable Bladder Pump - Spare Parts Kit for Current Design Pumps |
| | 1 | 21150043 | Disc, PTFE, 1.66 PBP |
| | 1 | | Intake Screen, SS6 |
| | 1 | 17500081 | Ball, SS6, 3/8" |
| | 1 | 17500082 | Ball, SS6, 1/2" |
| | 1 | 11150051 | Internal Snap Ring, SS6 |
| | 2 | 21150042 | Compression Ring, PTFE |
| | 2 | 11150318 | O-Ring, Viton, 36mm x 2.5mm |
| | 2 | 11150319 | O-Ring, Viton, 23.5mm x 2mm |
| | 1 | 17500118 | O-Ring, Viton, #019 |
| 1 | 17500119 | O-Ring, Viton, #014 | |

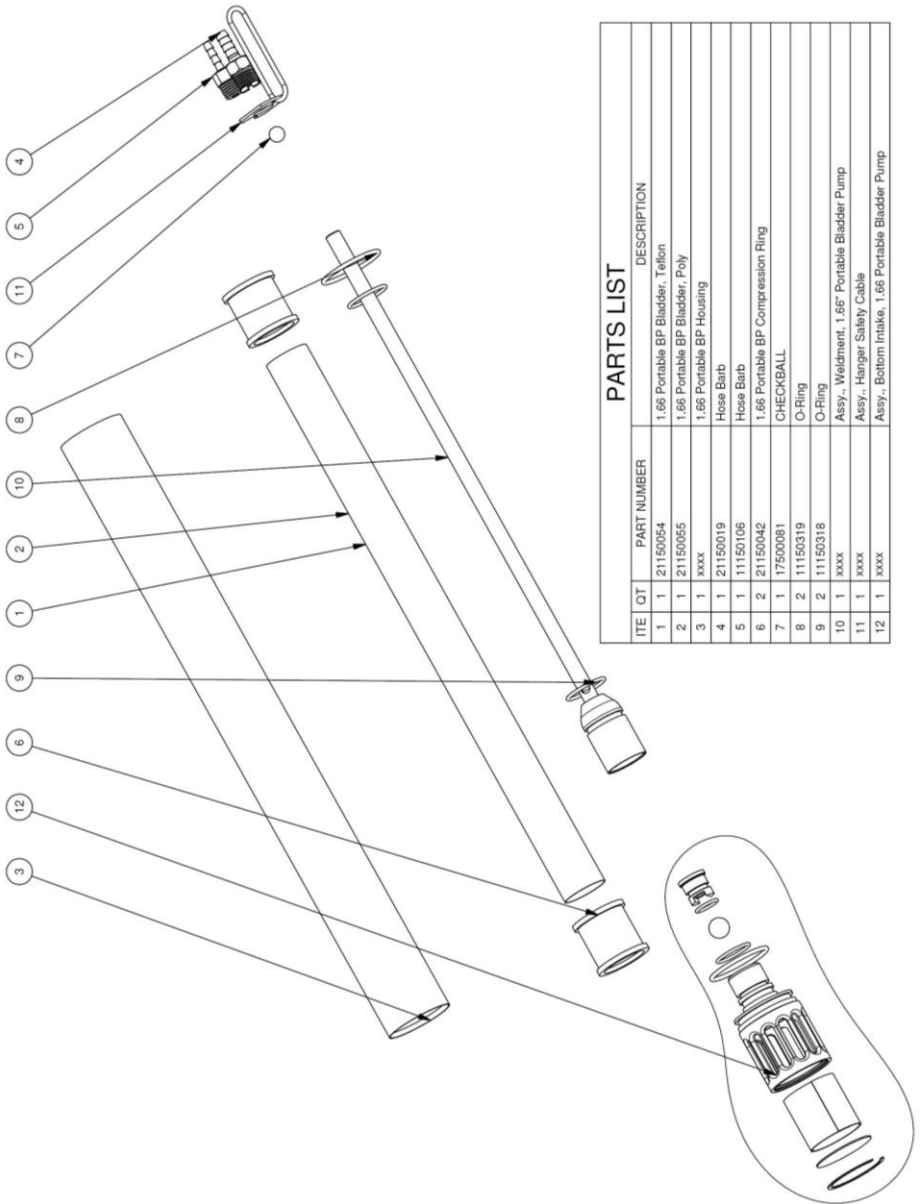
MODEL .850" PORTABLE BLADDER PUMP - 81150014

| <u>QTY/ASM</u> | <u>DESCRIPTION</u> | <u>PART NO.</u> |
|-----------------------|--|------------------------|
| 1 | Bladder, .85" Bladder Pump | 51150051 |
| 2 | Hose barb, Air-In | 11150118 |
| 1 | Hose barb, Air-Out | 17200245 |
| 1 | Housing, .85" Bladder Pump | 21150047 |
| 2 | PTFE Compression Ring | 21150048 |
| 2 | O-Ring, Cap Housing | 17500112 |
| 4 | O-Ring, Weldment, Small | 17500111 |
| 2 | Checkball, Upper | 17500079 |
| 1 | Krytox Lubricant | 12103157 |
| 1 | Assembly, Weldment, .850 Bladder Pump | 21150045 |
| 1 | Assembly, Bottom Intake, .85" Bladder Pump | 51150118 |
| 1 | Cap Lower, .85 Bladder Pump | |
| 1 | Checkball, Lower | |
| 1 | Inlet Screen | |
| 1 | Shutoff Disc, Bottom | |
| 1 | Snap Ring, Internal | |
| 1 | O-Ring, Cap Housing | |
| 1 | Spare Parts Kit | 51150052 |
| 2 | Checkball | |
| 4 | O-Ring, Weldment, Small | |
| 2 | O-Ring, Cap Housing | |
| 1 | Shutoff Disc, Bottom | |
| 1 | Snap Ring, Internal | |
| 1 | Inlet Screen | |
| 2 | PTFE Compression Ring | |
| 2 | O-Ring, Cap Housing | |

MODEL .675" PORTABLE BLADDER PUMP - 81150015

| <u>QTY/ASM</u> | <u>DESCRIPTION</u> | <u>PART NO.</u> |
|-----------------------|--|------------------------|
| 1 | Housing, .675 Bladder Pump | 21150032 |
| 1 | Cap, Upper, .675 Bladder Pump | 21150030 |
| 2 | Hose barb | 17200245 |
| 1 | Bladder | 11150120 |
| 2 | PTFE Compression Ring | 21150052 |
| 1 | Checkball, Upper | PPM130001 |
| 1 | O-Ring, Cap Housing, Large | 17500119 |
| 2 | O-Ring, Weldment, Medium | 11260066 |
| 2 | O-Ring, Weldment, Small | 17500113 |
| 1 | Krytox Lubricant | 12103157 |
| 1 | Assy Weldment, .675 Bladder Pump | 21150051 |
| 1 | Assy, Bottom Intake, .675 Bladder Pump | 51150120 |
| 1 | Cap Lower, .675 Bladder Pump | 21150031 |
| 1 | O-Ring, Cap Housing, Large | 17500119 |
| 1 | Checkball, Lower | 17500079 |
| 1 | Inlet Screen | 11150109 |
| 1 | Shutoff Disc, Bottom | 21150033 |
| 1 | Snap Ring, Internal | 11150109 |
| 1 | Checkball Retainer | 21150087 |
| 1 | Spare Parts Kit * | 51150053 |
| 1 | Inlet Screen | 11150109 |
| 1 | Shutoff Disc, Bottom | 21150033 |
| 1 | Snap Ring, Internal | 11150109 |
| 2 | PTFE Compression Ring | 21150052 |
| 1 | Checkball, Upper | PPM130001 |
| 1 | Checkball, Lower | 17500079 |
| 2 | O-Ring, Cap Housing, Large | 17500119 |
| 2 | O-Ring, Medium | 11200665 |
| 2 | O-Ring, Small | 17500113 |
| 1 | Checkball Retainer | 21150087 |

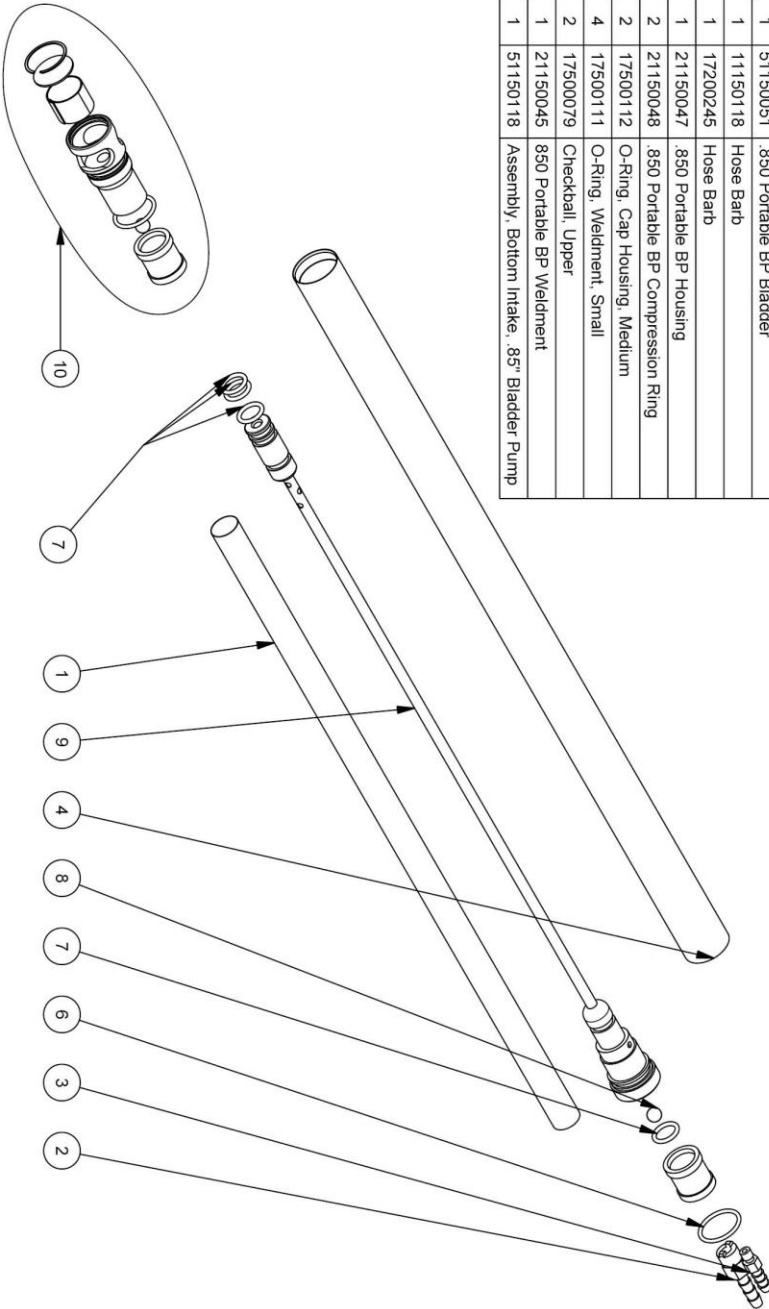
MODEL 1.66" PORTABLE BLADDER PUMP – 8115xxxx



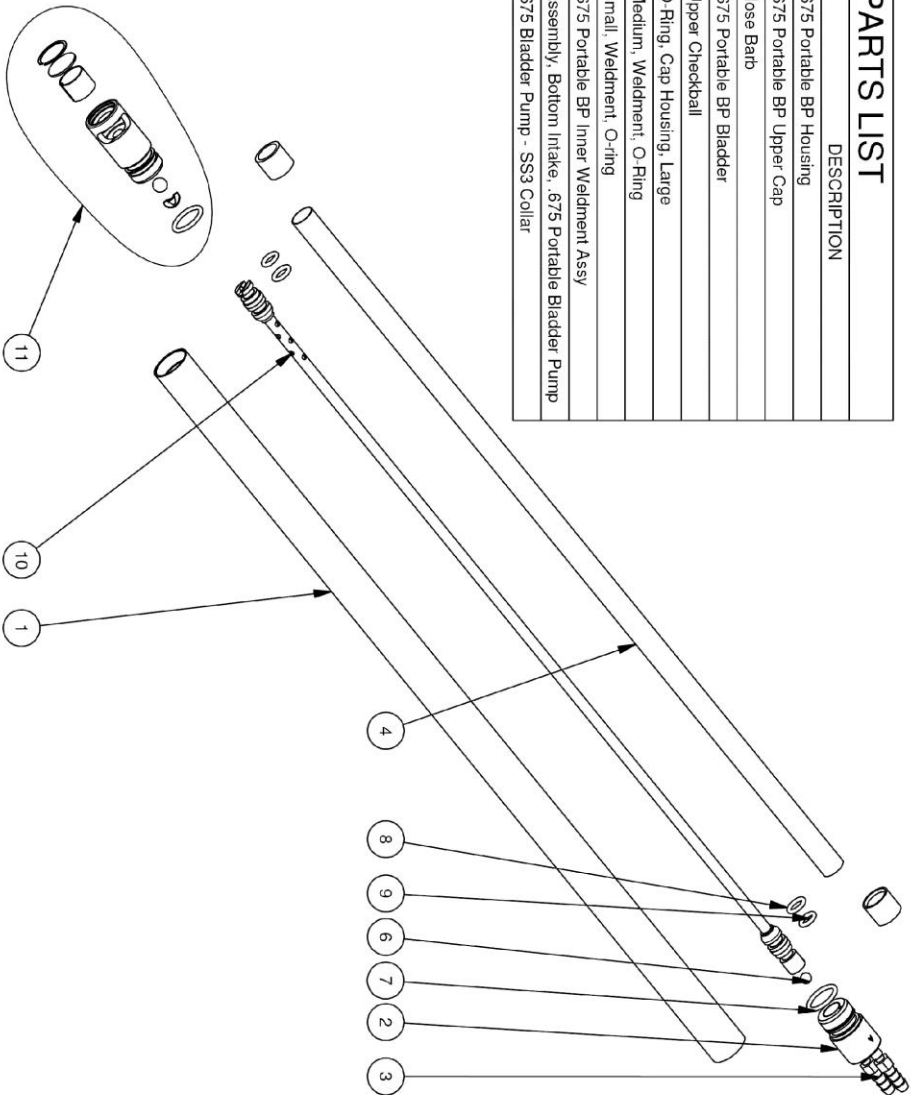
| ITE | QTY | PART NUMBER | DESCRIPTION |
|-----|-----|-------------|--|
| 1 | 1 | 21150054 | 1.66 Portable BP Bladder, Teilon |
| 2 | 1 | 21150065 | 1.66 Portable BP Bladder, Poly |
| 3 | 1 | xxxx | 1.66 Portable BP Housing |
| 4 | 1 | 21150019 | Hose Barb |
| 5 | 1 | 11150106 | Hose Barb |
| 6 | 2 | 21150042 | 1.66 Portable BP Compression Ring |
| 7 | 1 | 17500081 | CHECKBALL |
| 8 | 2 | 11150319 | O-Ring |
| 9 | 2 | 11150318 | O-Ring |
| 10 | 1 | xxxx | Assy., Weldment, 1.66" Portable Bladder Pump |
| 11 | 1 | xxxx | Assy., Hanger Safety Cable |
| 12 | 1 | xxxx | Assy., Bottom Intake, 1.66 Portable Bladder Pump |

PARTS LIST

| ITEM | QTY | PART NO. | DESCRIPTION |
|------|-----|----------|--|
| 1 | 1 | 51150051 | .850 Portable BP Bladder |
| 2 | 1 | 11150118 | Hose Barb |
| 3 | 1 | 17200245 | Hose Barb |
| 4 | 1 | 21150047 | .850 Portable BP Housing |
| 5 | 2 | 21150048 | .850 Portable BP Compression Ring |
| 6 | 2 | 17500112 | O-Ring, Cap Housing, Medium |
| 7 | 4 | 17500111 | O-Ring, Weldment, Small |
| 8 | 2 | 17500079 | Checkball, Upper |
| 9 | 1 | 21150045 | .850 Portable BP Weldment |
| 10 | 1 | 51150118 | Assembly, Bottom Intake, .85" Bladder Pump |



| PARTS LIST | | | |
|------------|-----|-----------|---|
| ITEM | QTY | PART NO. | DESCRIPTION |
| 1 | 1 | 21150032 | .675 Portable BP Housing |
| 2 | 1 | 21150030 | .675 Portable BP Upper Cap |
| 3 | 2 | 17200245 | Hose Barb |
| 4 | 1 | 51150050 | .675 Portable BP Bladder |
| 6 | 1 | PPM130001 | Upper Checkball |
| 7 | 2 | 17500119 | O-Ring, Cap Housing, Large |
| 8 | 2 | 11200665 | Medium, Weldment, O-Ring |
| 9 | 2 | 17500113 | Small, Weldment, O-Ring |
| 10 | 1 | 21150051 | .675 Portable BP Inner Weldment Assy |
| 11 | 1 | 51150120 | Assembly, Bottom Intake, .675 Portable Bladder Pump |
| 26 | 2 | 21150052 | .675 Bladder Pump - SS3 Collar |



Notes:

The Warranty

For a period of one (1) year from date of first sale, product is warranted to be free from defects in materials and workmanship. Geotech agrees to repair or replace, at Geotech's option, the portion proving defective, or at our option to refund the purchase price thereof. Geotech will have no warranty obligation if the product is subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized modification, alteration, repair, or replacement of wear parts. User assumes all other risk, if any, including the risk of injury, loss, or damage, direct or consequential, arising out of the use, misuse, or inability to use this product. User agrees to use, maintain and install product in accordance with recommendations and instructions. User is responsible for transportation charges connected to the repair or replacement of product under this warranty.

Equipment Return Policy

A Return Material Authorization number (RMA #) is required prior to return of any equipment to our facilities, please call 800 number for appropriate location. An RMA # will be issued upon receipt of your request to return equipment, which should include reasons for the return. Your return shipment to us must have this RMA # clearly marked on the outside of the package. Proof of date of purchase is required for processing of all warranty requests.

This policy applies to both equipment sales and repair orders.

FOR A RETURN MATERIAL AUTHORIZATION, PLEASE CALL OUR
SERVICE DEPARTMENT AT 1-800-833-7958.

Model Number: _____

Serial Number: _____

Date: _____

Equipment Decontamination

Prior to return, all equipment must be thoroughly cleaned and decontaminated. Please make note on RMA form, the use of equipment, contaminants equipment was exposed to, and decontamination solutions/methods used.

Geotech reserves the right to refuse any equipment not properly decontaminated. Geotech may also choose to decontaminate equipment for a fee, which will be applied to the repair order invoice.

Geotech Environmental Equipment, Inc

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