



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

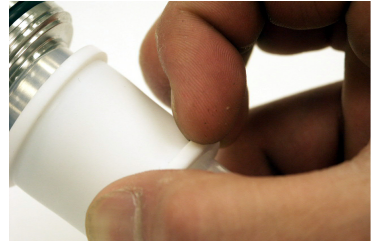
Bladder Removal Steps:

Remove the lower Teflon™ 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.



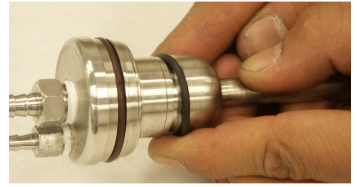
Remove the upper Teflon™ compression ring #21150042 and slide the ring off of the end of the internal tube weldment assembly #21150039. Slide the bladder #21150054 off of the internal center tube weldment assembly #21150039, at this point the O-ring #11150049 on the upper end can be replaced.



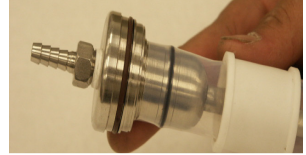
Note: Part numbers listed in the assembly procedure described above pertains only to the 1.66 Portable Bladder Pump. The .675 and .850 Portable Bladder Pumps assemble similarly, however, with different part numbers which can be found in the following sections.

Reassembly Steps:

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



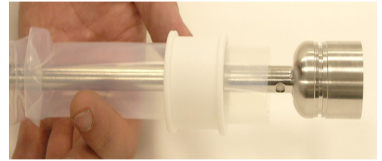
Slide bladder #11150042 on to the center tube assembly and over the O-ring #11150049 on the upper end of the center tube assembly. Be careful not to roll the O-ring when sliding the bladder over this end.



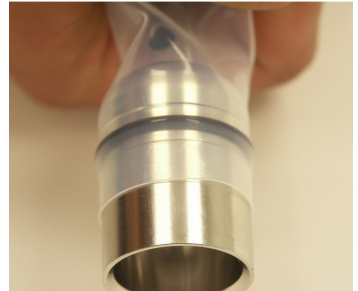
Slide a Teflon™ compression ring #11150042 over the bladder and push down over bladder and upper end of the center tube.



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

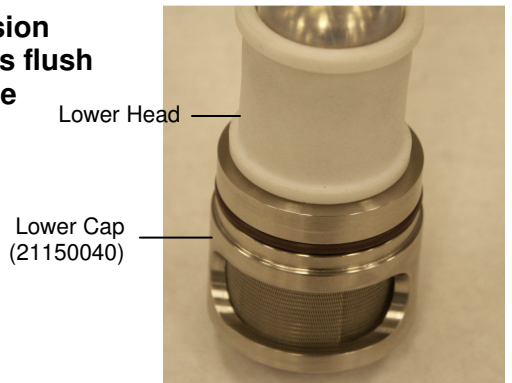


Slide the bladder up, beyond the bottom of the assembly, exposing the lower end of the center tube and install the O-ring #11150319 into the groove on the lower end.



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

Now slide the Teflon™ 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	36.4 mL	160 mL	45 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

1.66	.17 ID x .25 OD
.850	.17 ID x .25 OD
.675	.17 ID x .25 OD

Discharge

.25 ID x .375 OD
.17 ID x .25 OD
.17 ID x .25 OD

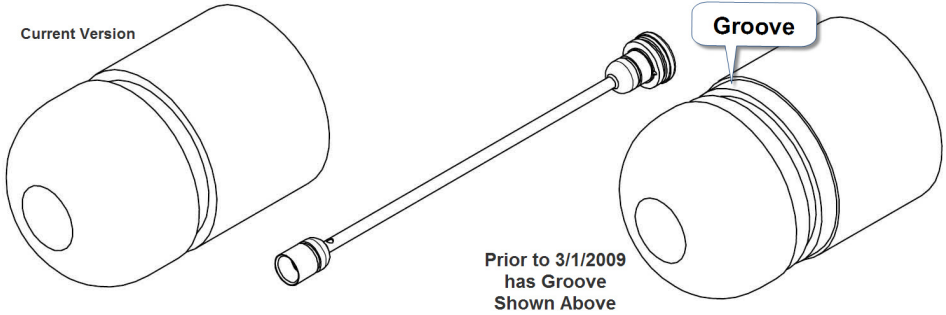
*ash = above static head

Chapter 4: Replacement Parts List

MODEL 1.66" PORTABLE BLADDER PUMP - 81150013

<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
2	Hose barb, Air-In	21150019
1	Hose barb, Air-Out	11150106
2	Teflon Compression Ring	21150042
1	Checkball, Upper	17500081
2	O-Ring, Internal Weldment	11150319
1	O-Ring, Upper Cap	11150318
1	Krytox Lubricant	12103157
1	Safety Cable Hanger Assy	51150119
1	Assembly, Weldment, 1.66" Bladder Pump	21150039
1	Assembly, Bottom Intake, 1.66" Bladder Pump	51150055
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 Before 3/1/2009	51150065
1	Spare Parts Kit After 3/1/2009	51150049
1	O-Ring Kit Before 3/1 2009	91150002
1	O-Ring Kit After 3/1/2009	91150010

1.66 Portable Bladder Pump Service Kits



	QTY	Part No.	Description
O-RING KIT		91150002	1.66 Portable Bladder Pump O-Ring Kit for Pumps Before 3/1/2009
	2	11150028	O-Ring, Viton, #122
	2	11150049	O-Ring, Viton, #117
	2	17500103	O-Ring, Viton, #113

O-RING KIT		91150010	1.66 Portable Bladder Pump O-Ring Kit for Current Version Pumps
	2	11150318	O-Ring, Viton, 36mm x 2.5mm
	2	11150319	O-Ring, Viton, 23.5mm x 2mm
	2	17500106	O-Ring, Viton, #114

SPARE PARTS KIT		51150065	1.66 Portable Bladder Pump - Spare Parts Kit for Pumps Before 3/1/2009
	1	21150043	Disc, PTFE, 1.66 PBP
	1	21150044	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	11150028	O-Ring, Viton, #122
	2	11150049	O-Ring, Viton, #117
	2	17500103	O-Ring, Viton, #113

SPARE PARTS KIT		51150049	1.66 Portable Bladder Pump - Spare Parts Kit for Current Version Pumps
	1	21150043	Disc, PTFE, 1.66 PBP
	1	21150044	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
	2	17500106	O-Ring, Viton, #114

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	Teflon 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	Teflon Compression Ring	
2	O-Ring, Cap Housing	

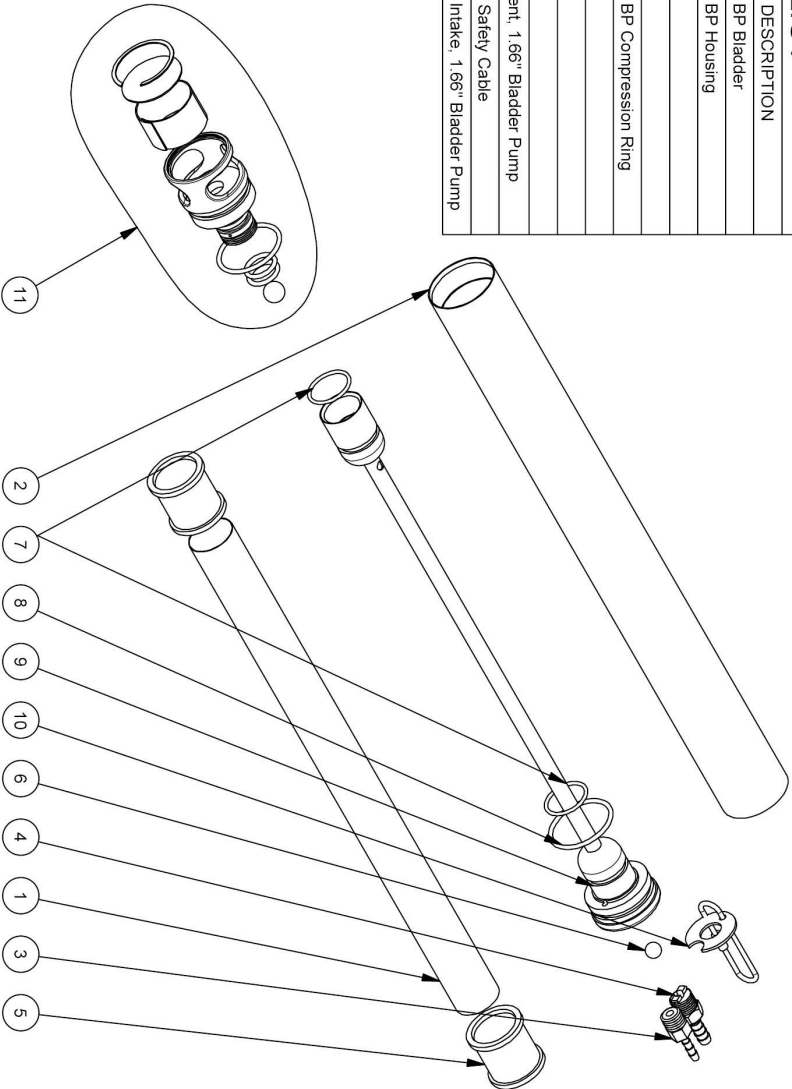
MODEL .675" PORTABLE BLADDER PUMP - 81150015

<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	Teflon 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	Teflon 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 - 81150013

PARTS LIST

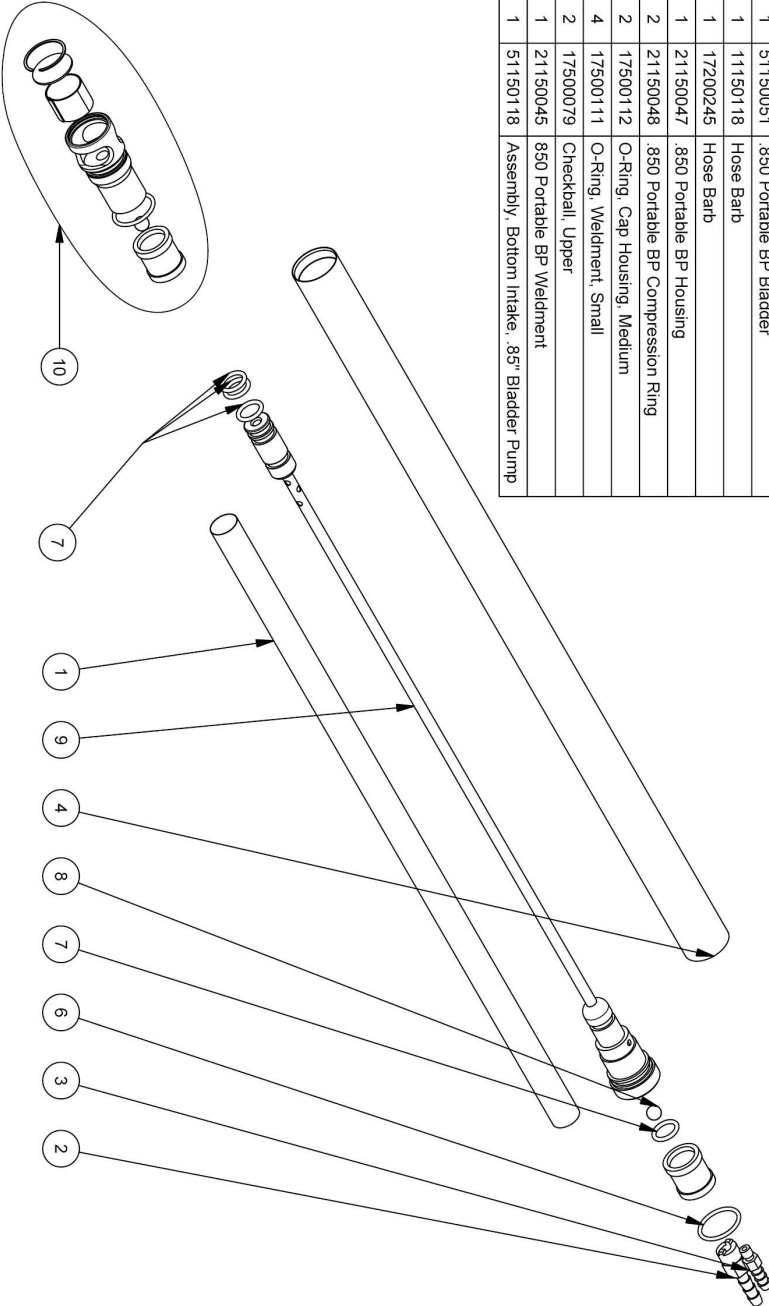
ITEM	QTY	PART NO.	DESCRIPTION
1	1	21150054	1.66 Portable BP Bladder
2	1	21150041	1.66 Portable BP Housing
3	1	21150019	Hose Barb
4	1	11150106	Hose Barb
5	2	21150042	1.66 Portable BP Compression Ring
6	1	17500081	Checkball
7	2	11150319	O-Ring
8	2	11150318	O-Ring
9	1	21150039	Assy, Weldment, 1.66" Bladder Pump
10	1	51150119	Assy, Hanger Safety Cable
11	1	51150055	Assy, Bottom Intake, 1.66" Bladder Pump



MODEL .850" PORTABLE BLADDER PUMP - 81150014

PARTS LIST

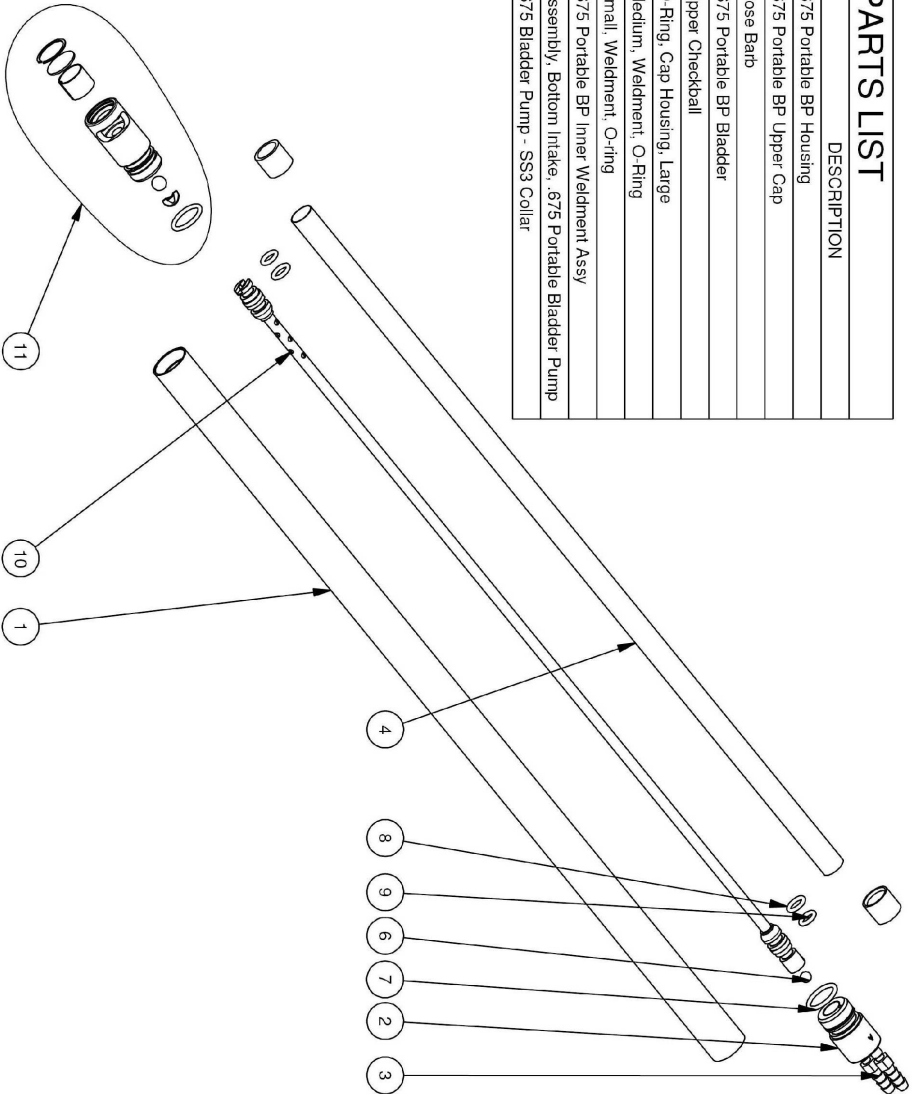
ITEM	QTY	PART NO.	DESCRIPTION
1	1	51150051	.850 Portable BP Bladder
2	1	11150118	Hose Barb
3	1	17200245	Hose Barb
4	1	21150047	.850 Portable BP Housing
5	2	21150048	.850 Portable BP Compression Ring
6	2	17500112	O-Ring, Cap Housing, Medium
7	4	17500111	O-Ring, Weldment, Small
8	2	17500079	Checkball,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



MODEL .675" PORTABLE BLADDER PUMP - 81150015

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	PEM130001	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



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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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