

# **Geotech 1.66” Auto-Reclaimer**

## **Installation and Operation**





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# DOCUMENTATION CONVENTIONS

This manual uses the following conventions to present information:



## WARNING

An exclamation point icon indicates a **WARNING** of a situation or condition that could lead to personal injury or death. You should not proceed until you read and thoroughly understand the **WARNING** message.



## CAUTION

A raised hand icon indicates **CAUTION** information that relates to a situation or condition that could lead to equipment malfunction or damage. You should not proceed until you read and thoroughly understand the **CAUTION** message.



## NOTES

A note icon indicates **NOTE** information. Notes provide additional or supplementary information about an activity or concept.

# Chapter 1: System Description

## Function and Theory

The GEOTECH 1.66" Auto-Reclaimer top fill, bottom fill, or top/bottom fill system is a fixed intake, automatic total fluids recovery pump. The 1.66" Auto-Reclaimer will recover fluids from depths of up to 250 ft.

The GEOTECH Auto-Reclaimer is an automatic and controllerless, positive air-displacement pump. The Auto-Reclaimer works without the use of any external controls, relays, bleeder tubes or bubblers. The Auto-Reclaimer requires only a regulated compressed air source to operate. The Auto-Reclaimer requires an operating pressure of only 1 PSI above static head. The Auto-Reclaimer does not require clean, dry air to function properly, and can operate on contaminated or industrial air.

The GEOTECH Auto-Reclaimer can operate under both positive and \*negative (vacuum) pressure environments. The Auto-Reclaimer self-adjusts the discharge flow rate automatically to match individual well recharge rates (up to the pumps maximum capacity).



The Auto-Reclaimer will pump large particulates up to 1/16" in diameter without problems. The unique single self-cleaning valve mechanism will pass high viscosity gear oils without fouling.

\* Vacuum conditions may require a Vacuum Equalizer if venting out of the recovery well. Contact your technical sales representative for more information.

# System Components

The GEOTECH Auto-Reclaimer system components consist of an Upper Head Valve Assembly, Internal Float Assembly, Bottom Intake Assembly (for Bottom Fill, Top/Bottom Fill), and a Top Fill Intake Screen Assembly (for Top and Dual Fill Models)

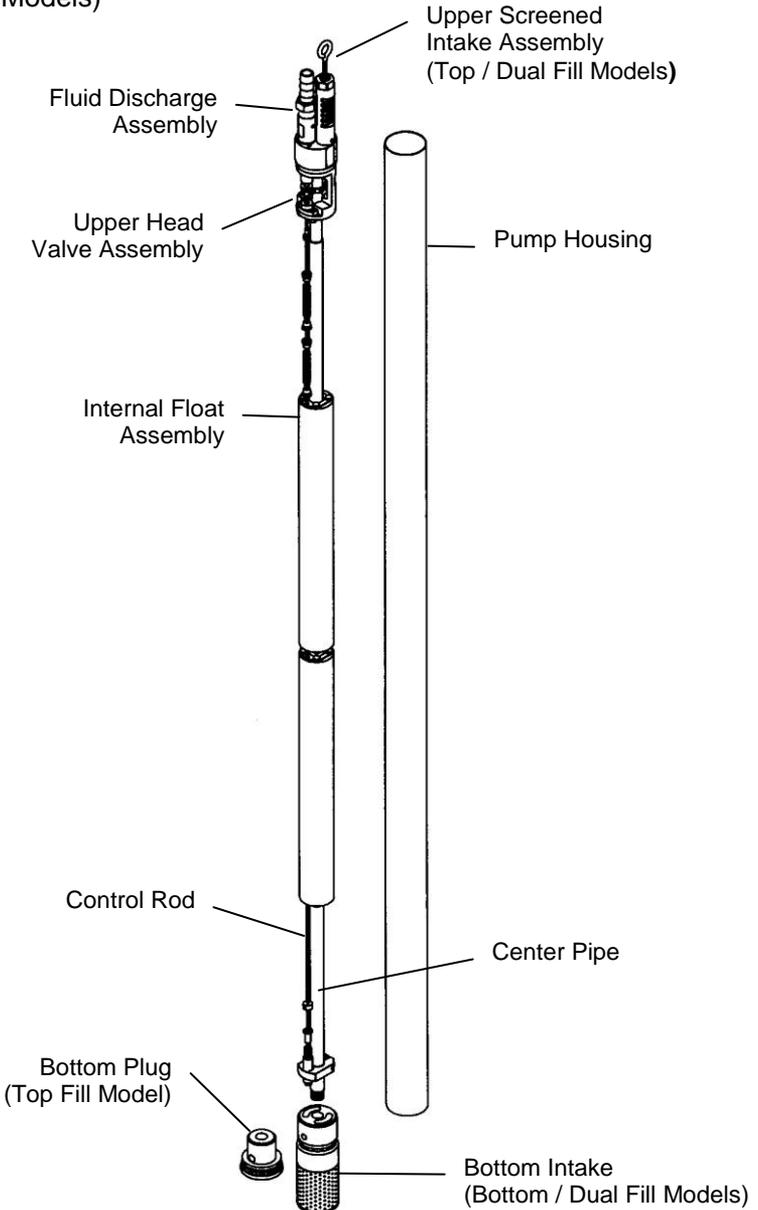


Figure 1

## Chapter 2: System Installation

### Top Fill

Attach the hoses to the proper barbed fittings (see figure 2, page 7). Ensure that all hoses are installed securely and completely (Fluid intake assembly not shown).

**Ensure the eyebolt is threaded all the way to the fixed jam nut, and is securely tightened.**

Attach the pump hanging cable to the eyebolt; ensuring attachment method is secure and tight.

The Auto-Reclaimer can now be lowered into the recovery well. The top fill Auto-Reclaimer is initially lowered into the well where the top inlet is submerged below static groundwater conditions. This allows floating product to enter through the top inlet to fill the housing and be pumped to the surface (see figure 3, page 11).

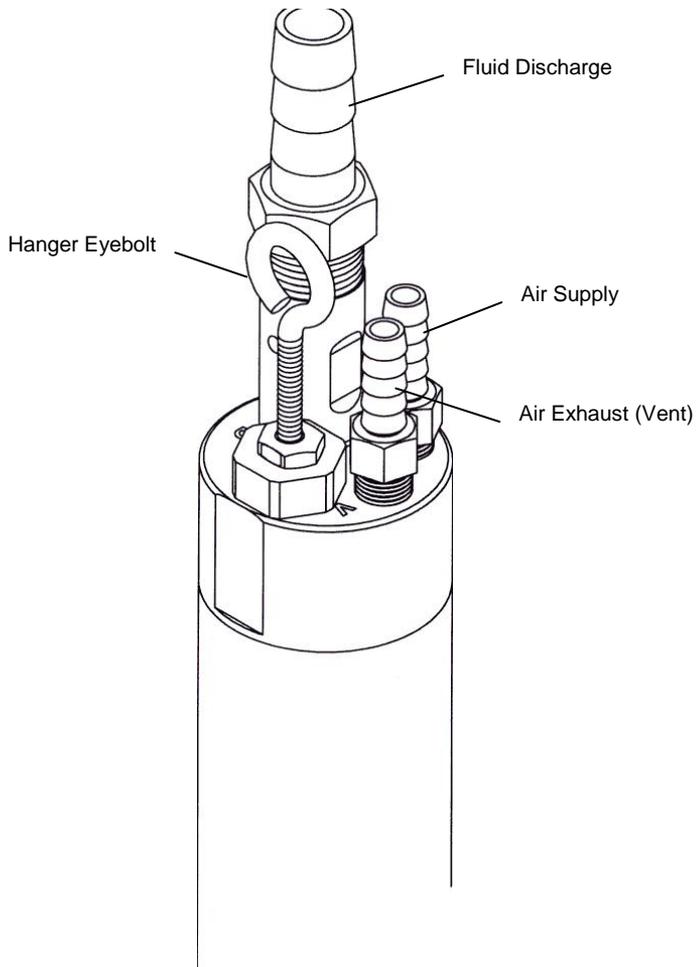
### Bottom Fill

Attach the air inlet, product discharge, and the air exhaust hoses to the proper barbed fittings (see figure 2, page 7).

**Ensure the eyebolt is threaded all the way to the fixed jam nut, and is securely tightened.**

Attach the pump hanging cable to the eyebolt; ensuring attachment method is secure and tight.

The Auto-Reclaimer can now be lowered into the recovery well. The bottom fill Auto-Reclaimer is initially lowered into the well where the bottom inlet is submerged well below static groundwater conditions (see figure 4, page 12).



**Figure 2**

## Dual Fill

Attach the hoses to the proper barbed fittings (see figure 2, page 7). Ensure that all hoses are installed securely and completely.

**Ensure the eyebolt is threaded all the way to the fixed jam nut, and securely tightened.**

Attach the pump hanging cable to the eyebolt; ensuring attachment method is secure and tight.

The Auto-Reclaimer can now be lowered into the recovery well. The Dual (top / bottom) fill Auto-Reclaimer is initially lowered into the well where the top inlet is submerged below static groundwater conditions. This allows floating product to enter through both the top and bottom inlets to fill the housing and be pumped to the surface.

## Chapter 3: System Operation



**Compressed air is utilized in this system as an on demand supply. Typically, .5 cubic foot of air is necessary per gallon of liquid pumped.**

### Top Fill

The Auto-Reclaimer is placed in a recovery well with the top inlet submerged below static groundwater. Provided with a regulated air supply, the Auto-Reclaimer cyclically fills and empties. As the pump fills, the internal float assembly rises until it comes in contact with an upper stop that is connected to a mechanical rocker assembly. The rocker assembly shifts and simultaneously opens the air supply valve. The resulting effect is air pressure builds within the pump housing and displaces the fluids up and out of the pump through the discharge ball check valve. As the pump discharge cycle progresses, the float assembly falls. The float assembly contacts the lower stop, which triggers the rocker assembly, again shifting, thus closing the air supply valve and opening the air exhaust valve. The pressurized air exits out of the air exhaust tube, allowing the pump to refill and begin a new cycle. This cyclic operation continues automatically as fluid is drawn into the well.

### Bottom Fill

The Bottom Fill Auto-Reclaimer is placed in a recovery well with the bottom intake submerged below static groundwater. Provided with a regulated air supply, the Auto-Reclaimer cyclically fills and empties. As the pump fills, the internal float assembly rises until it comes in contact with an upper stop that is connected to a mechanical rocker assembly. The rocker assembly shifts and simultaneously opens the air supply valve. The resulting effect is air pressure builds within the pump housing and displaces the fluids up and out of the pump through the discharge ball check valve. As the pump discharge cycle progresses, the float assembly falls. The float assembly contacts the lower stop, which

triggers the rocker assembly, again shifting, thus closing the air supply valve and opening the air exhaust valve. The pressurized air exits out of the air exhaust tube, allowing the pump to refill and begin a new cycle. This cyclic operation continues automatically as fluid is drawn into the well.

The Auto-Reclaimer will ultimately catch up to the recharge rate of the well, (see specifications section, maximum flow rate). The fluid level will be maintained at the minimum activation level (see specifications), and the Auto-Reclaimer will pump at the rate equal to the recharge rate of the well.

## **Dual Fill**

The Top/Bottom fill Auto-Reclaimer is placed in a recovery well with the top inlet submerged below static groundwater. Provided with a regulated air supply, the Auto-Reclaimer cyclically fills and empties. As the pump fills, the internal float assembly rises until it comes in contact with an upper stop that is connected to a mechanical rocker assembly. The rocker assembly shifts and simultaneously opens the air supply valve. The resulting effect is air pressure builds within the pump housing and displaces the fluids up and out of the pump through the discharge ball check valve. As the pump discharge cycle progresses, the float assembly falls. The float assembly contacts the lower stop, which triggers the rocker assembly, again shifting, thus closing the air supply valve and opening the air exhaust valve. The pressurized air exits out of the air exhaust tube, allowing the pump to refill and begin a new cycle. This cyclic operation continues automatically as fluid is drawn into the well.

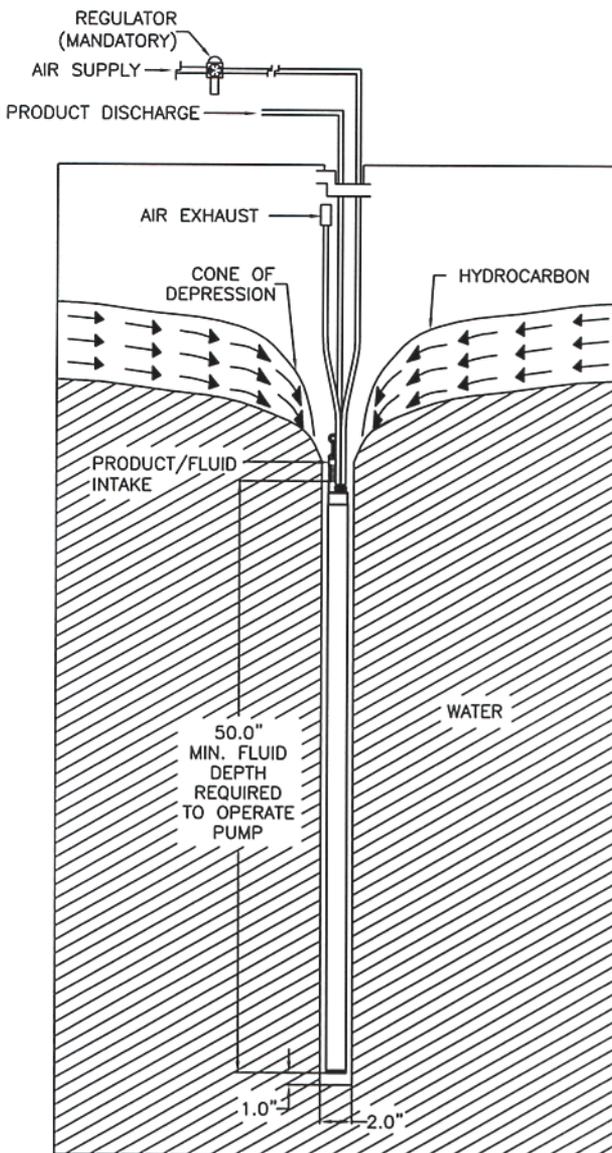


Figure 3

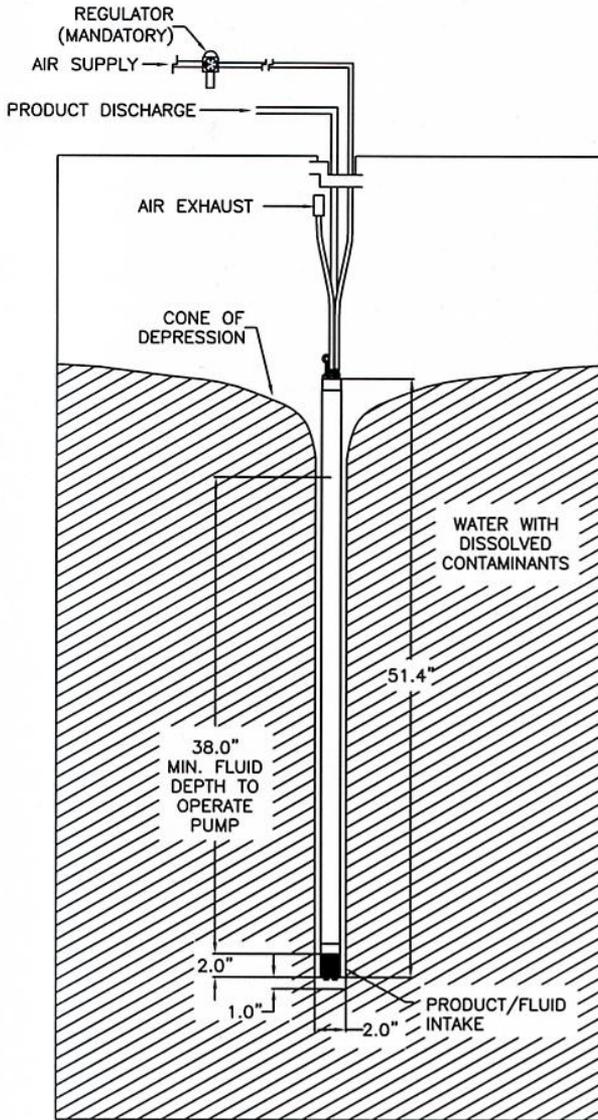


Figure 4

# Chapter 4: System Maintenance

## Maintenance Procedures

Every 3-4 months or when deemed necessary, depending on fluids being pumped, the Auto-Reclaimer should be removed from the well and cleaned inside and out. This may be accomplished using an industrial cleaner, such as phosphate free detergent or Simple Green.

The following areas should be examined:

Float Assembly - Check for loose screws on float plates.

Compression Springs - Check for proper spring geometry.

Air Pressure Valve - Verify gap, adjust if necessary.

Exhaust Valve - Verify gap, adjust if necessary.

O-Rings - Visually inspect for damage.

Stop Collar - Verify location distance from female spring guide (see figure below).

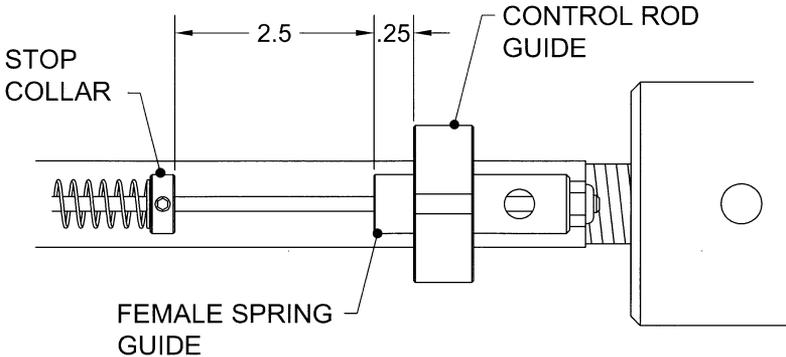


Figure 5

Pump does not require clean dry air to operate. However, using dirty particulate filled air will increase maintenance frequency.

## Chapter 5: System Troubleshooting

**Problem:** Pump does not discharge fluid to the surface.

**Solutions:**

- 1) Ensure air pressure is adequate enough. –
  - (See specifications section, min operating pressure example: .43 psi per ft. of static head pressure)
- 2) Inlet screen is clogged –
  - Clean screen
- 3) Inlet pipe plug is clogged –
  - Clear, Clean plug
- 4) Air exhaust vent hose is clogged –
  - Clear vent hose
- 5) Hoses are kinked or cut –
  - Replace hoses

# Chapter 6: System Specifications

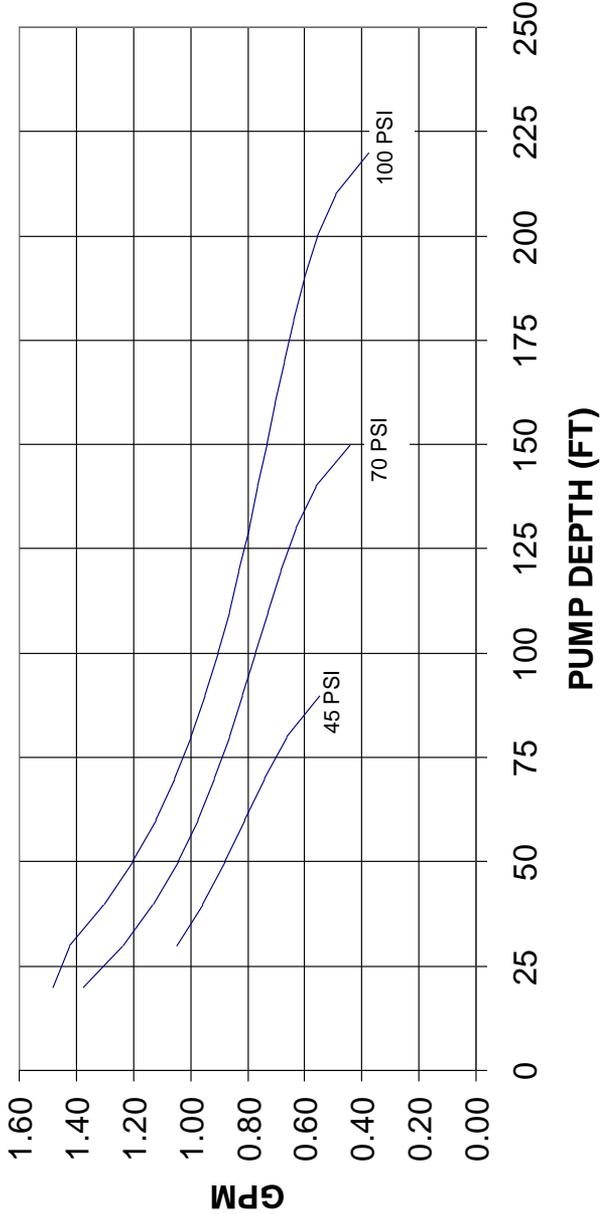
## 48" GEOTECH 1.66 AUTO-RECLAIMER

CONSTRUCTION MATERIALS	STAINLESS STEEL, PTFE, Acetal, VITON	
HOUSING MATERIAL	STAINLESS STEEL	
CONFIGURATION	48" DUAL (TOP / BOTTOM LOADING) FIXED INTAKE	48" BOTTOM LOADING FIXED INTAKE
PUMP TYPE	CONTROLLERLESS POSITIVE AIR DISPLACEMENT	
OUTSIDE DIAMETER LENGTH WEIGHT	1.66 in. (4.22cm.) 56.3 in. (143.0cm.) 10 lbs. (4.5kg.)	CONTROLLERLESS POSITIVE AIR DISPLACEMENT 1.66 in. (4.22cm.) 54.7 in. (139.0cm.) 9.5 lbs. (4.3kg.)
MAX. RATED DEPTH	250 ft. (152.4 m.)	250 ft. (152.4 m.)
MIN. WELL ID	2.0 in. (5.08cm.)	2.0 in. (5.08cm.)
OPERATING PRESSURE RANGE MIN. OPERATING PRESSURE AIR CONSUMPTION MIN. LIQUID DENSITY	5-275 psi. (.3-18.9 bar) 1 psi (.07 bar) above static head 4-1.3 scf / gal (3.0 / 9.7 liters air/liters (fluid) (see air consumption curve) .7 SFG (g/cc)	
VOLUME / CYCLE MAXIMUM FLOW RATE	.11 gal. (.42 liters)	2.75 gpm. (10.41 lpm.) @ 20 ft. submergence @ 100 psi 38.0 in. (96.5cm.)
MINIMUM ACTIVATION LEVEL	3.00 gpm. (11.36 lpm.) @ 20 ft. submergence @ 100 psi 38.0 in. (96.5cm.)	
FITTINGS HOSE SIZES FLUID DISCHARGE AIR SUPPLY AIR EXHAUST	STAINLESS STEEL (BARB TYPE) 1/2" X 3/8" MPT 1/4" X 1/8" MPT 1/4" X 1/8" MPT	
TEMPERATURE SPECIFICATIONS	220° F TOP TEMPERATURE FOR HDPE	

Figure 6

48" GEOTECH 1.66 AUTO-RECLAIMER  
 ALL CALCULATIONS BASED ON MODEL GEO 1.66  
 W / MINIMUM 10' SUBMERGENCE OF PUMP HEAD

48" TOP LOADING FIXED INTAKE  
 (1/2" ID Fluid Discharge Hose)

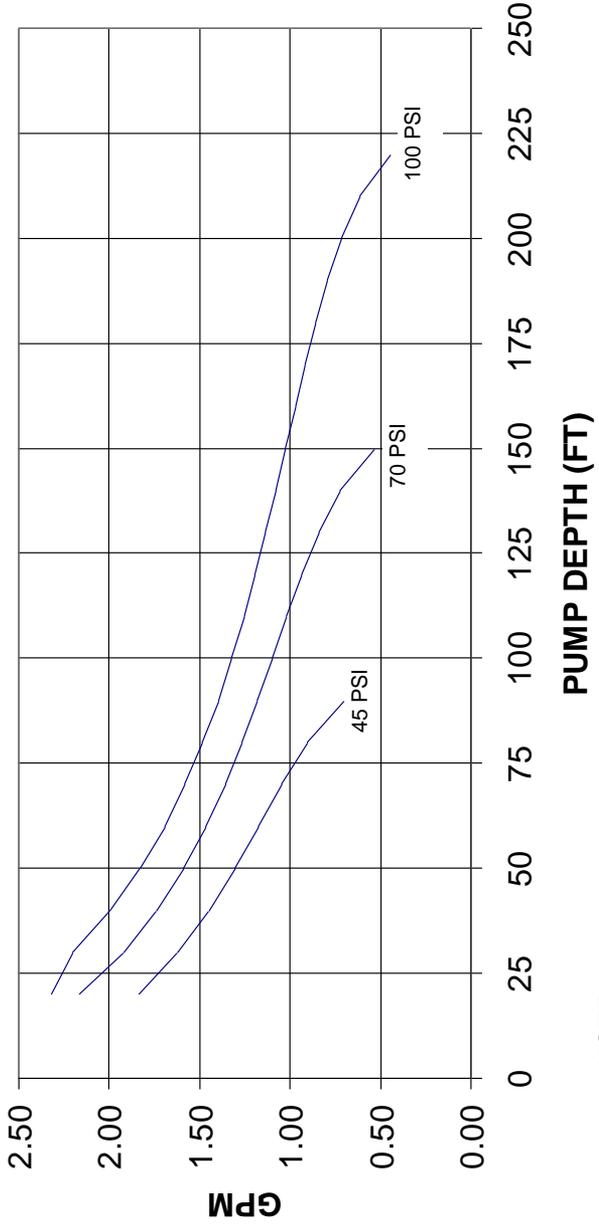


NOTE:  
 SPECIFIC GRAVITY AND VISCOSITY WILL ALTER LISTED SPECIFICATIONS

Figure 7

48" GEOTECH 1.66 AUTO-RECLAIMER  
 ALL CALCULATIONS BASED ON MODEL GEO 1.66  
 W / MINIMUM 10' SUBMERGENCE OF PUMP HEAD

48" BOTTOM LOADING FIXED INTAKE  
 (1/2" ID Fluid Discharge Hose)

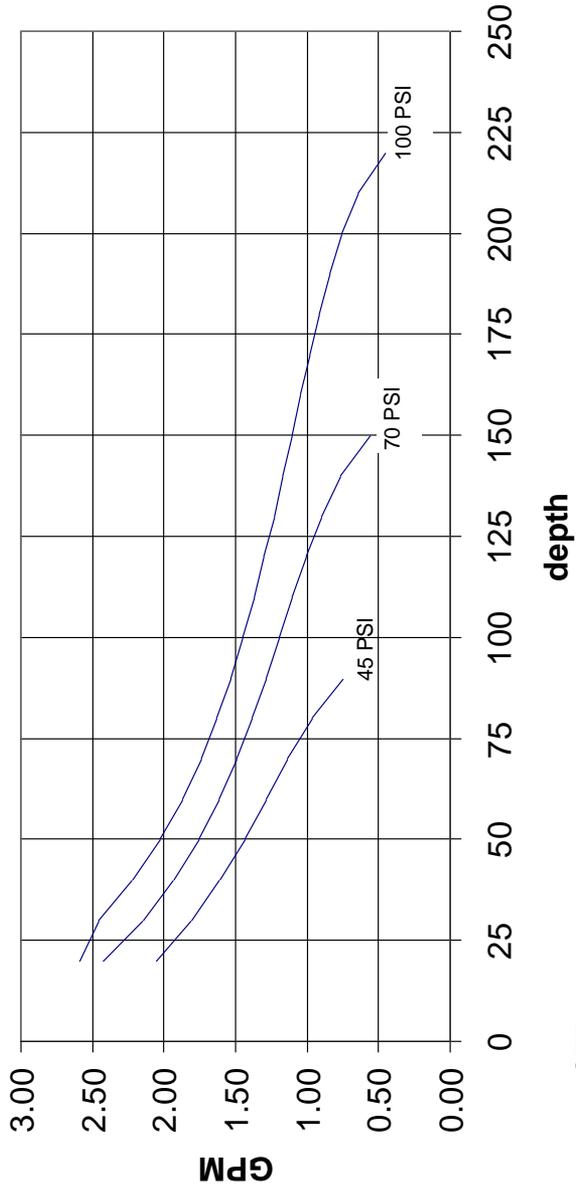


NOTE:  
 SPECIFIC GRAVITY AND VISCOSITY WILL ALTER LISTED SPECIFICATIONS

Figure 8

48" GEOTECH 1.66 AUTO-RECLAIMER  
 ALL CALCULATIONS BASED ON MODEL GEO 1.66  
 W / MINIMUM 10' SUBMERGENCE OF PUMP HEAD

48" DUAL LOADING FIXED INTAKE  
 (1/2" ID Fluid Discharge Hose)



NOTE:  
 SPECIFIC GRAVITY AND VISCOSITY WILL ALTER LISTED SPECIFICATIONS

Figure 9

48" GEOTECH 1.66 AUTO-RECLAIMER  
 AIR CONSUMPTION CURVES  
 1/2" ID FLUID DISCHARGE HOSE

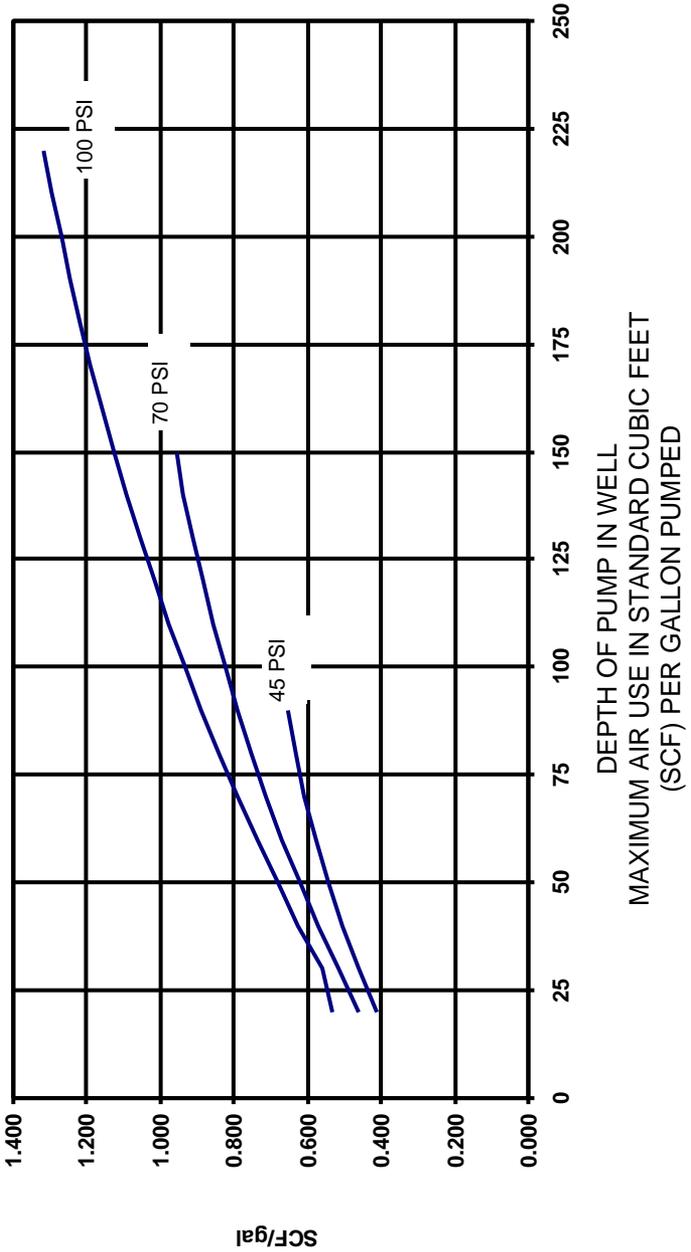


Figure 10

## Chapter 7: Replacement Parts List

<b>Parts List</b>	<b>Parts Description</b>
11150019	Ball, SS6
16600110	Spring, Compression, SS6
16600133	F, Bolt, Eye, SS4
16600160	Set Screw, Dog PT.
17200072	F, Hosebarb, SS6 (Air)
17200072	F, Hosebarb, SS6 (Vent)
17500082	Ball, SS6
17500084	Ball, TFE
26600036	Lower Stop
26600061	Housing, Outer, SS, 1.66 Auto
26600071	Head, Bottom Inlet, 1.66B Auto
26600072	Cap, Bottom Inlet, 1.66B Auto
26600078	Seat, Pres Valve, SS, 1.66 Auto
26600079	Seat, Vent Valve, SS, 1.66 Auto
26600083	Screen, Inlet, SS, 1.66 Auto
26600084	Hosebarb, SS, 1/2" x 3/8" MPT (Discharge)
26600086	Rod, Control, SS4, 1.66 Auto 48"
26600130	Stop Collar
56600025	Assy, Float, 1.66 Auto
16600165	Manual

## **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 Geotech's 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.



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