

geotech

SDS Specific Depth Sampler Pump

Installation and Operation Manual



Table of Contents

Chapter 1: System Description	p. 02
Function and Theory	p. 02
System Components	p. 02
Chapter 2: System Installation	p. 04
Chapter 3: System Operation.....	p. 05
Chapter 4: System Maintenance.....	p. 06
Chapter 5: System Troubleshooting.....	p. 07
Chapter 6: System Specifications	p. 08
Chapter 7: System Schematic.....	p. 09
Chapter 8: Replacement Parts List	p. 10
Warranty.....	p. 12

Chapter 1: System Description

Function and Theory

This manual applies to the Geotech Specific Depth Sampling Pump products 81200006 (300') and 81200008 (450'). The SDS Pump product is a system which allows sampling from deep wells without purging. A bailer is lowered down the well to the desired depth. As soon as the bailer reaches the water, it fills up. When the bailer reaches the depth of the desired sample, a pump inside the bailer is powered, replacing the stagnant surface well water with water from the intake screen portion of the well.

System Components

Controller/Power supply module

This contains a sealed lead acid rechargeable battery, control switches, indicators, and the necessary drive electronics (see figure 1, for a view of the entire assembly).

SDS pump tape and reel

This is the tape which is used to lower the bailer down the well, and its reel. The tape is marked in decimal feet, from the intake of the bailer. The tape includes wires which power the pump.

Bailer

The double check valve bailer, along with the pump, clips onto the end of the tape.

Pump

This is fastened to the end of the tape, and fits inside the bailer.

Power cable

This connects the controller/Power supply module to the reel, powering the pump.

Battery charger

This can be plugged into any 120 VAC outlet to recharge the battery.

Hanger

This flexible plastic device is used to fasten the bailer and the pump to the end of the tape.

Stand pipe extensions

These push onto the pump output tube to move the discharged stagnant water further away from the bailer intake.

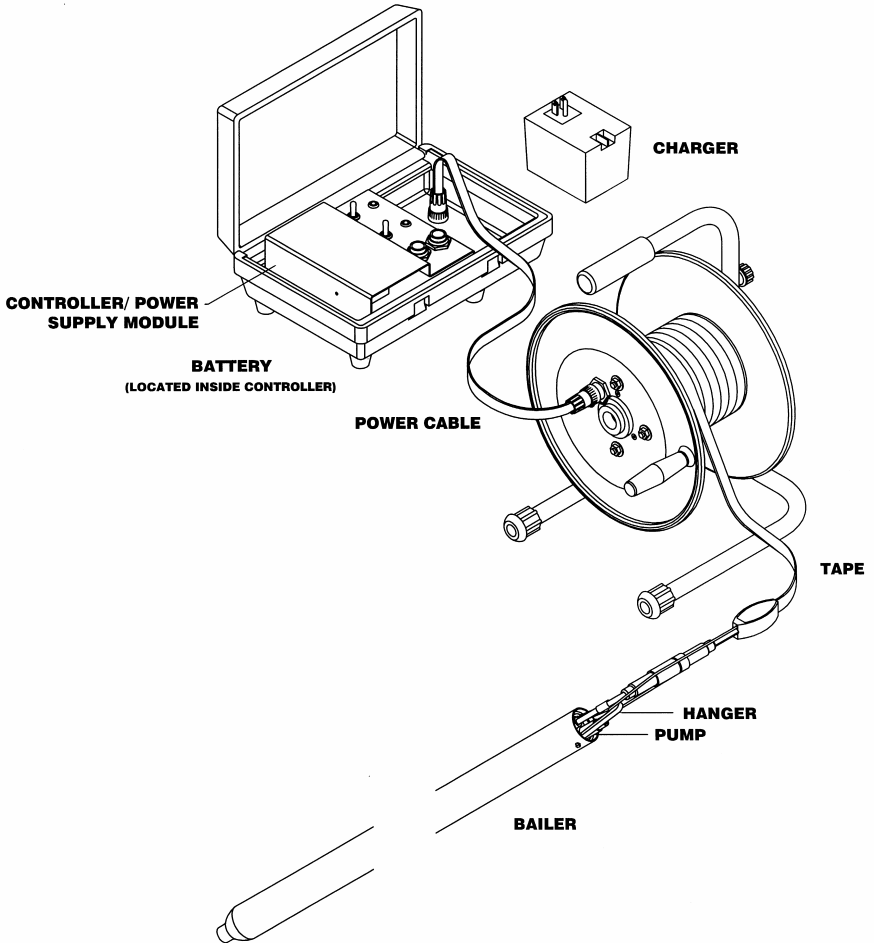


Figure 1

Chapter 2: System Installation

Before heading out into the field, test the battery in the controller/power supply module. Hold the test switch in the 'Run' position for 15 seconds. If the battery indicator led dims at all during this time, recharge the battery (see chapter 4, system maintenance).

If not previously done, fasten the motor onto the end of the tape. Fit the hanger through the Teflon coated steel wire loop at the end of the tape, and squeeze the ends together to fit the ears into the corresponding holes in the pump housing and the bailer. Make sure that the hanger ears are completely through the holes in the bailer. Plug the pump connector to the connector at the end of the tape. See figure 2.



Figure 2

If using the discharge stand pipe, push it onto the pump discharge. Generally the full length should be used unless this will bring the discharge above the surface of the water during the pumping operation.



If using the discharge standpipe, use a wire tie to fasten it to the tape near its top, to prevent the standpipe from binding on the well casing when withdrawing the bailer from the well.



Do not unwind tape from the reel with the power cable connected to the reel.

Loosen the tensioning knob on the reel, and lower the bailer down the well. When the bailer is at the desired depth, as indicated by the graduations on the tape, tighten the tensioning knob to hold the bailer at the desired depth. Plug one end of the power cable into the 'pump' connector on the controller/power supply, and the other end into the connector on the reel.

Chapter 3: System Operation

Set the test switch to 'Run' and set the Flow switch as desired. 'Full Flow' is the normal position, or 'Reduced Flow' can be used to extend battery life. The pump indicator led should come on. Time the pumping operation carefully. 30 seconds is the recommended time. If the pump is left on longer, there is a risk that some of the stagnant water initially in the bailer can be pumped back in. 30 seconds is sufficient to replace essentially all the water in the bailer. This time can be extended slightly if the 'Reduced Flow' setting is used, or if the battery is known to be nearly completely discharged.

Disconnect the power cable, wind the tape back onto the reel, and carefully remove the bailer from the well. Transfer the sample into its transportation container, disconnect from the tape if desired, and tighten the reel tensioning knob.

Chapter 4: System Maintenance

If the battery needs to be recharged, plug the charger into the 'Battery Charger' connector on the controller/power supply, and plug the charger into a 120 VAC outlet. Leave connected at least until the led on the charger turns from yellow to green. It can be difficult to distinguish these two colors. When the charger is powered but not connected to a battery, this led shows green. If the best possible battery charge is desired, the charger can be left connected indefinitely or until just prior to use.

Cleaning

The down-well parts of the system in particular should be kept clean to avoid sample contamination.

Battery care:

To insure maximum life of the battery, take the following steps. Never store the battery in a discharged state. If the unit is unused, recharge the battery twice a year. It is best to store the battery at cooler temperatures. Prolonged exposure to temperature above 30° C can shorten battery life. Never let the battery become completely discharged. If the battery does become deeply discharged, recharge it as soon as possible. A completely discharged battery might be recovered by leaving it connected to the charger for an extended period of time. The longer a deeply discharged battery is left in that state, the less likely it is to recover. A properly maintained battery should last at least 5 years, or withstand 20 to 50 deep discharge-recharge cycles, whichever comes first.

Chapter 5: System Troubleshooting

PROBLEM: Pump fails to run.

SOLUTION: A. Check battery charge
B. Check all connections

PROBLEM: Battery fails to hold a charge.

SOLUTION: If a battery can be left connected to the charger overnight but fails to run a pump, or quickly loses its charge, contact Geotech for a replacement. If a properly maintained battery (see chapter 4) quickly loses its ability to hold a charge, return the unit to Geotech for repair.

PROBLEM: Battery test led doesn't come on.

SOLUTION: If charging the battery overnight doesn't fix this, return the unit to Geotech for repair.

PROBLEM: Motor run LED doesn't light.

SOLUTION: If the led doesn't come on even if the pump is running, return the unit to Geotech for repair.

Chapter 6: System Specifications

Tape length:	300, 450 feet	
Unit weight:	25.3 lbs (300') 32.3 lbs (450')	
Dimensions & Weights		
Controller/Power Supply (including charger)	12" W x 4.5" H x 8.25" D; 7.2 lbs	
Reel, Tape, & Motor	12" W x 14.5" H x 10.5" D; 300': 17.5 lbs 12" W x 14.5" H x 10.5" D; 450': 24.5 lbs	
Pump flow rate	300' Tape	450' Tape
Full Flow	1 gpm	.9 gpm
Reduced Flow	.8 gpm	.7 gpm

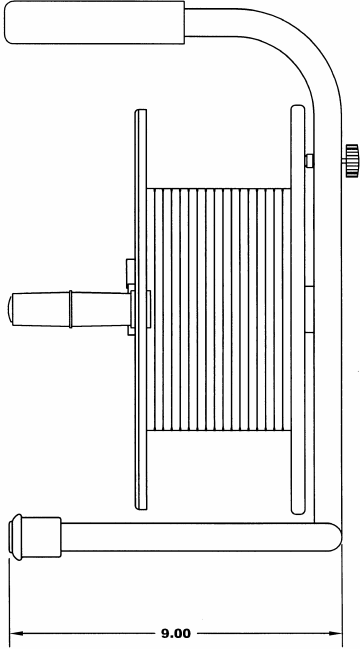
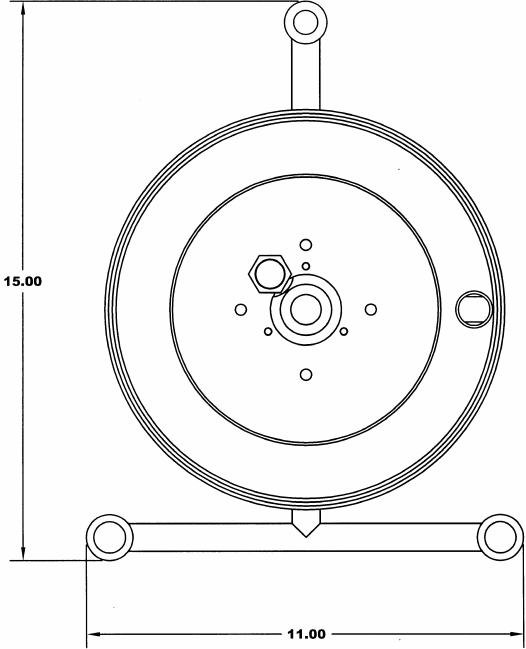
Note: These flow rates valid only if standpipe discharge is below the water surface.

Minimum well diameter:	1.9"
Bailer volume:	1 liter
Bailer Dimensions: hanger)	49" L x 1.65" D (1.82" D/including
Bailer weight excluding pump:	.6 lb.
Materials that contact sample:	
Tape coating:	Polyethylene
Bailer	Polyethylene
Pump housing:	ABS
Pump impeller	Stainless Steel
Motor shaft	Stainless Steel
Pump hanger:	Acetal
Pump seal	Butyl rubber

Controller/power supply specifications:

Battery operation temperature:	-40 to 60° C
Battery charging temperature:	-20 to 50° C
Battery life:	5 years or 200 – 1000 discharge cycles (depending on depth of discharge), whichever comes first
Battery capacity:	at least 360 samples (30 seconds each @ full flow)

Chapter 7: System Schematic



Chapter 8: Replacement Parts List

Part Number	Part Description
81050040	Bailer (case of 12)
21200040	Pump hanger
51200005	Pump
51200009	300' Tape
51200037	450' Tape
11200440	Battery
81200007	Charger
51200000	Power cable
51200003	Controller/power supply module
11200450	Manual

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 our 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 OR 1-800-275-5325.

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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