0237D#L#

OPERATING INSTRUCTIONS

Borehole Prep Kits

January 2012

Model 0237D06L10 and Model 0237D10L10
3 Meter (10 ft.) Deep Borehole Preparation Kit

SOILMOISTURE EQUIPMENT CORP.
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UNPACKING

The Kit was thoroughly tested before shipment. When packed, it was in perfect working order. Unpack with care being sure to remove all packing material. Follow the instructions carefully in order to assure long, trouble-free service.
Any damage found upon receipt should be reported immediately to the transport carrier for claim. It is important to save the shipping container and all evidence to support your claim. Be sure to read all operating instructions thoroughly before operating the unit.

CAUTIONS & WARNINGS

- Take special care when handling. The parts are relatively heavy and have sharp edges.
- Take special care to secure the Coupling Sleeve on extension parts to avoid losing auger parts at the end of borehole.
- Always use gloves to prevent injuries.

WARRANTY & LIABILITY

Soilmoisture Equipment Corp. (SEC) warrants all products manufactured by SEC to be free from defects in materials and workmanship under normal use and service for twelve (12) months from the date of invoice, provided the section below has been met.

Soilmoisture Equipment Corp. (SEC) is not liable for any damages, actual or inferred, caused by misuse or improper handling of its products. SEC products are designed to be used solely as described in these product operating instructions by a prudent individual under normal operating conditions in applications intended for use by this product.

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ACQUAINT YOURSELF WITH THE PARTS

The Model 0237D06L10 designed for boring and preparing a 10 cm (3.94") diameter borehole with down to 3 m (10 ft) depth.

1. XBAG-0237, Carrying Bag
2. 0234SHDLBXLE30, Auger Extension Rod (30")
3. 0234HBPBD10, Sizing Auger
4. 0234SHDLB, Auger Handle
5. 0234SLB, Coupling Sleeve
6. 0234WPBBD10, Well Prep Brush
7. 0234LOMBD10, Loam Soil Auger
8. 0898-0237, Operating Instructions

The Model 0237D06L06 designed for boring and preparing a 6 cm (2.36") diameter borehole with down to 3 m (10 ft) depth.

1. XBAG-0237, Carrying Bag
2. 0234SHDLBXLE30, Auger Extension Rod (30")
3. 0234HBPBD06, Sizing Auger
4. 0234SHDLB, Auger Handle
5. 0234SLB, Coupling Sleeve
6. 0234WPBBD06, Well Prep Brush
7. 0234LOMBD06, Loam Soil Auger
8. 0898-0237, Operating Instructions

Please note that both Kits come with four Extensions. More extensions can be ordered separately (see “Replacement Parts” list at the end of these instructions).

Fig. 1. Model 2840KAG10L25 Components

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HOW TO USE AND/OR OPERATE UNIT

Augering the Borehole

When choosing a borehole site, it should represent the typical soil profile of interest. In many cases, a soil trench is dug prior to the permeability test to expose the strata allowing the investigator to describe the near surface structure and soil types associated with that location. If that information is not available, the tailings extracted from the hole as the augering depth is increased may be described.

Auger a hole using a standard soil auger; in some cases specialized augers may be recommended. Once augered to the depth required, it needs to be "sized" to a finish borehole dimension. Borehole walls and bottom surfaces are then prepared for water using a "Well Prep Brush".

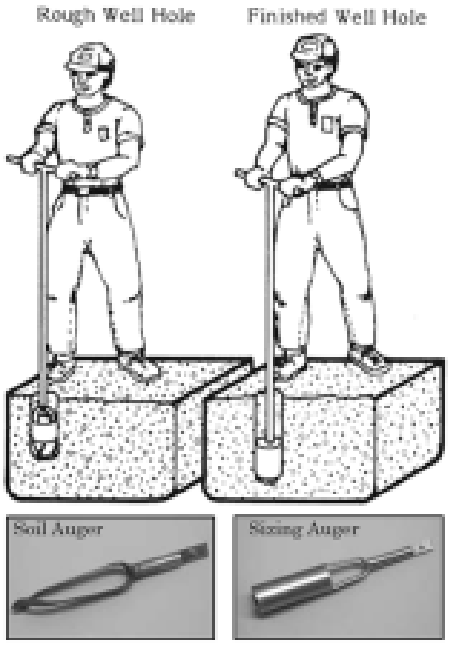

Fig. 2 Augering a Hole

Holes dug for permeameter tests should never be done with a shovel or other digging tool such as a posthole digger as they will not produce a uniform hole with the specific dimensions required to produce accurate permeability results. All the necessary tools for boring and preparing a borehole are included in this Kit or may be purchased separately.

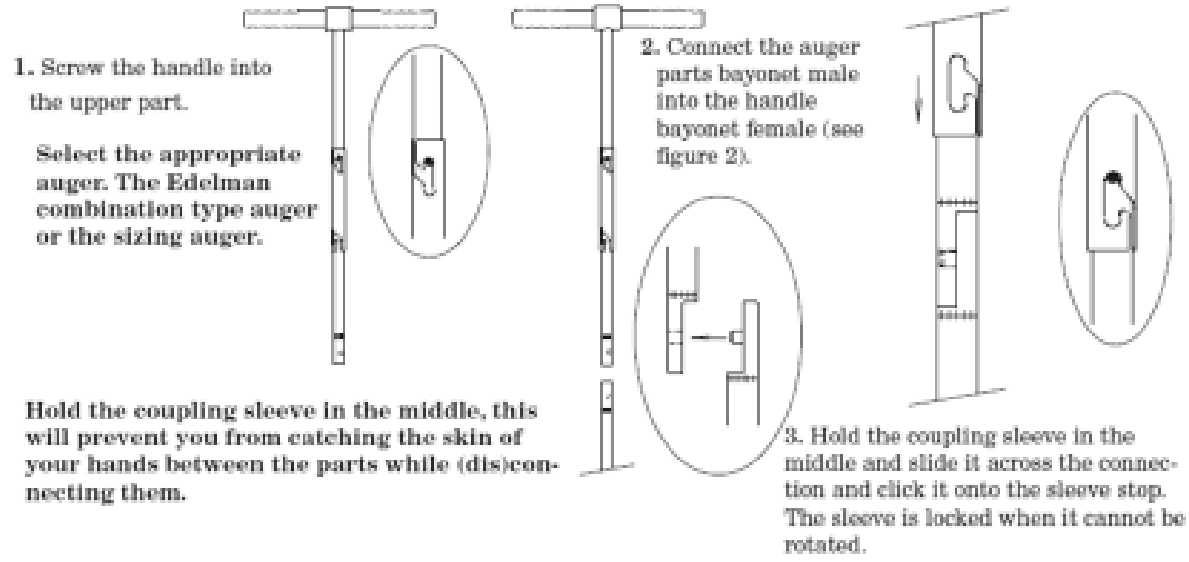

Fig. 3. Assembly steps of the auger components.

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Handle Assembly for Use with Soil Augers, Sizing Augers and Well Prep Brush

First assemble the handle and attach the soil auger (see below). The various auger components can be attached to the end as shown.

Digging a Successful Permeameter Well Hole

It's always good to know a little about the soil strata you are augering; it's an ongoing process. Soil textural and structural stratification can often be identified while augering the hole. It may provide important information about measuring and reporting the hydraulic properties of soil materials. For instance, knowing the existence of hard pan layers, etc. can provide useful information to explain unusual permeameter effects seen on flow profiles gathered at the site.

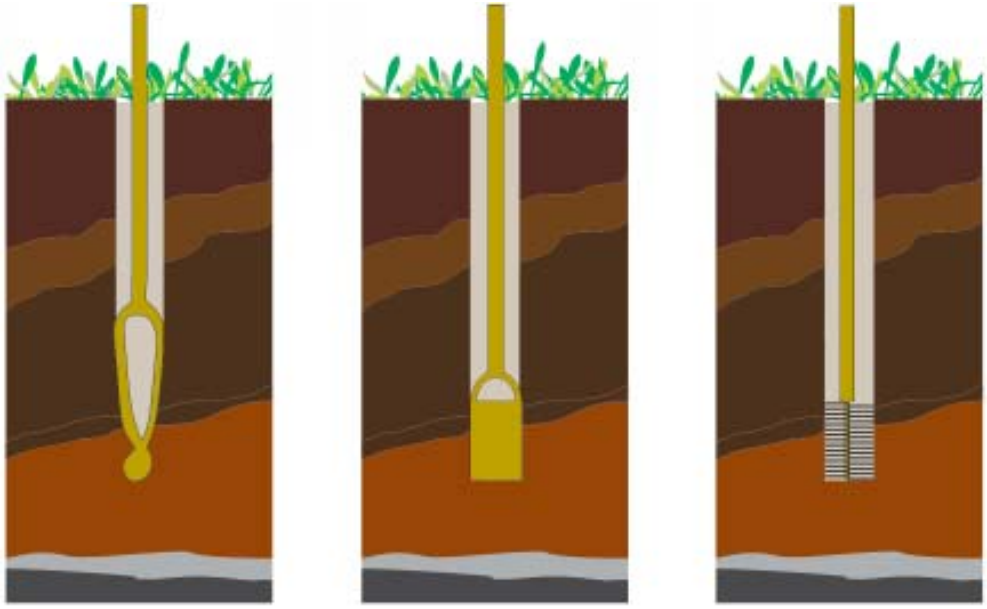

Fig. 4 - Step 1 Auger Borehole *Step 2 Size Borehole* *Step 3 Brush Borehole*

In moist fine-textured soils with high clay content, the process of sizing a borehole may create a smear layer which can impede the natural flow of water through the interior walls of a well. In order to obtain reliable and representative results using the Aardvark Permeameter, this smear layer must be neutralized using the Well Prep Brush. The Well Prep Brush is designed for use in a standard 10 cm diameter well hole, and has an outside diameter that is somewhat greater than the diameter of the well.

In cases where a hard smear proves not effective, an alternative technique such as an ice pick or spiked roller should be used (Reynolds et al., 2002). Typically, the difficulty of removing the smear layer increases with increasing wetness of the soil and in finer textured soils. It is recommended that fine textured soils not be augered when they are in a very wet state.

Insert the Well Prep Brush to the bottom of the well hole. Next, quickly and evenly pull the Well Prep Brush straight up and out of the well borehole.

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When the direction of the brush is reversed, the bristles will dig into the sides of the well hole, roughen the surface and scour the smear layer. This operation should not be done more than once or twice, since each operation removes a layer of soil. Repeated operations will enlarge the borehole diameter beyond the desirable limits needed to obtain accurate results.

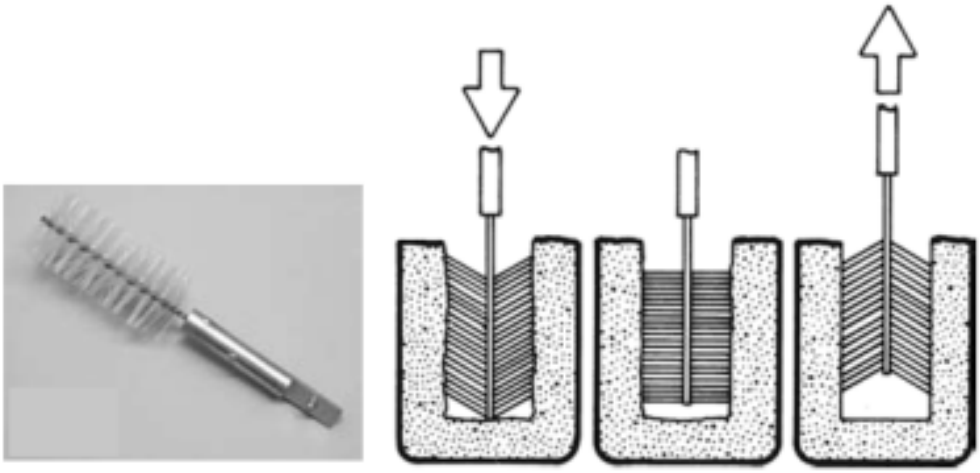

Fig. 5. Left: A Well Prep Brush. Right: Clean the smear layer using a Well Prep Brush

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GENERAL CARE AND MAINTENANCE

- Thoroughly clean all parts after each use to ensure long life of the product.
- Store in a dry area when not in use.

REPLACEMENT PARTS LIST - 6 cm Borehole Kit

ITEM	PART NUMBER	DESCRIPTION
Sizing Auger	0234HBPBD06	6 cm diameter, borehole prep. bottom, bayonet connection
Soil Auger	0234LOMBD06	Dutch type combination 6 cm diameter, bayonet connection
Auger Handle	0234SHDLB	Bayonet, detachable grip, 60 cm length
Auger Extension Rod	0234SHDLBXLE30	Bayonet, 100 cm length
Coupling Sleeve	0234SLB	Coupling Sleeve, bayonete
Well Prep Brush	0234WPBBD06	6 cm diameter, bayonet connection
Carrying bag	XBAG-0237	Borehole Auger Kit Carrying Bag

REPLACEMENT PARTS LIST - 10 cm Borehole Kit

ITEM	PART NUMBER	DESCRIPTION
Sizing Auger	0234HBPBD10	10 cm diam., borehole prep. bottom, bayonet connection
Soil Auger	0234LOMBD10	Dutch type comb., 10 cm diameter, bayonet connection
Auger Handle	0234SHDLB	Bayonet, detachable grip, 60 cm length
Auger Extension Rod	0234SHDLBXLE30	Bayonet, 100 cm length
Coupling Sleeve	0234SLB	Coupling Sleeve, bayonet
Well Prep Brush	0234WPBBD10	10 cm diameter, bayonet connection
Carrying bag	XBAG-0237	Borehole Auger Kit Carrying Bag

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