

**IMPACT**  
**IMPACT**  
**IMPACT**

**Lightweight Dynamic Cone  
Penetrometer  
SL969**

**Impact Test Equipment Ltd**

[www.impact-test.co.uk](http://www.impact-test.co.uk) - [www.impact-test.com](http://www.impact-test.com)  
[www.impact-testsets.co.uk](http://www.impact-testsets.co.uk)

[www.impact-test.com](http://www.impact-test.com)  
[www.impact-test.co.uk](http://www.impact-test.co.uk)  
[www.impact-testsets.co.uk](http://www.impact-testsets.co.uk)

User Guide  
**User Guide**  
**User Guide**



**Impact Test Equipment Ltd.  
Building 21 Stevenston Ind. Est.  
Stevenston  
Ayrshire  
KA20 3LR**

**T: 01294 602626**

**F: 01294 461168**

**E: [sales@impact-test.co.uk](mailto:sales@impact-test.co.uk)**

**Test Equipment  
[www.impact-test.co.uk](http://www.impact-test.co.uk)**

**Test Sieves & Accessories  
[www.impact-test.com](http://www.impact-test.com)**

**Test Sets to International Standards  
[www.impact-test.co.uk](http://www.impact-test.co.uk)**

## General Information

### Warnings

The manufacturer does not accept any responsibility for direct or indirect damage to people, things or animals and use of the appliance in different conditions from those foreseen.

The manufacturer reserves the right to make changes to the documentary information or to the appliance without advance notice.

Check the machine responds to the standards in force in the state in which it has been installed.

All operations necessary for maintaining machine efficiency before and throughout use are the operator's responsibility

Carefully read the entire manual before operating the machine.

It is vital to know the information and limitations contained in this manual for correct machine use by the operator.

Interventions are only permitted if the operator is accordingly competent and trained.

The operator must be knowledgeable about machine operations and mechanisms.

The purchaser must ensure that operators are trained and aware of all the information and clarifications in the supplied documentation.

Even with such certainty the operator or user must be informed and therefore aware of potential risks when operating the machine.

Safety, reliability and optimum performance is guaranteed when using original parts.



Any tampering or modifying of the appliance which has not been previously authorised in writing by the manufacturer is considered abusive and disclaims the constructor from any responsibility for any resulting damage.

All necessary operations to maintain the efficiency of the machine before and throughout use are the responsibility of the user.

### Warning and Danger Indications – Signs

The machine has been designed and constructed according to the current norms and consequently with mechanical and electrical safety devices designed to protect the operator or user from possible physical damage. Residual risks during use or in some intervention procedures on the device are however present. Such risks can be reduced by carefully following manual procedures, using the suggested individual protection devices and respecting the legal and safety norms in force.

This manual includes "Warning" and "Danger" indications in relevant chapters. These indications are shown with the words "Danger" or "Warning" in bold font and uppercase to make them highly visible.

	<b>WARNING</b>	indicates that machine damage could be caused should indications be ignored.
	<b>DANGER</b>	indicates that machine damage and/or injury to the worker could be caused should indications be ignored.

"**DANGEROUS ZONE**" indicates any zone inside or in the proximity of the appliance in which a person is exposed to the risk of injury or damage to health.

### Modifications and Instructions Manual

This manual reflects the state at the time of the launch of the machine on its market. If any modifications, improvements or adjustments have been made since machine supply the Manufacturer does not have to intervene on the marketed machine and will not consider the machine or the manual deficient or inadequate.

## General Safety

To ensure the safety of machine operators:

- Any tampering with the appliance not pre-emptively authorised by the manufacturer exempts the manufacturer from any responsibility for damage caused by or to it.
- The removal or tampering with safety devices entails a violation of the safety standards.
- Machine use is only allowed in areas where there is no risk of explosions or fires.
- Only the original fittings can be used. The use of unoriginal fittings exonerates the manufacturer from all responsibility.
- Check the appliance is in ideal working conditions and that its parts are not worn or faulty before Carry out all necessary maintenance
- Do not wear loose clothing, ties, chains or anything else which could become caught in the frame or other moving parts of the appliance.
- Do not subject the appliance to violent impact.
- Do not expose the appliance to fire, welding sparks or extreme temperatures.
- Do not bring the appliance into contact with corrosive substances.
- Check the workspace around the machine is clear from potentially dangerous objects.
- The machine operator must wear appropriate work clothing such as protective glasses, gloves and mask in order to avoid damage from, for example, harmful dust projection. Wear a lower back support when lifting heavy parts. There should be no hanging objects such as bracelets or otherwise, long hair should be protected with relevant precautions, shoes must be appropriate for the type of operation to be carried out.

### DURING USE

When operating check there are no conditions of danger. Immediately stop the machine when it is functioning irregularly. Contact the authorised Sales Service department.

RISK OR DANGER PROTECTION DEVICES	RISK OR DANGER PROTECTION DEVICES
HANDS OR FINGER SQUEEZE	REINFORCED GLOVES
FEET SQUEEZE	SAFETY SHOES



## Operation

The Lightweight Dynamic Cone Penetrometer is used to establish the thickness of different strata, when testing compaction works and to determine the relative density of fills and naturally deposited non-cohesive soils. If the ground is not too compacted, penetration tests can be carried out up to about 8 to 12 metres.



The Lightweight Dynamic Cone Penetrometer consists of:


- 10 Kg drop rammer, 500 mm. fall and anvil
- 11 1 metre x 22mm diameter sounding rods, complete with threaded collar and guiding rod
- Grooved rod to extract samples
- 2 drive points 90°, with 5 cm<sup>2</sup> and 10 cm<sup>2</sup> surface
- Lifting device for sounding rod, accessories
- Carrying case

Dimensions: 1080mm x 360mm x 220mm

This appliance is for the exclusive use for which it has been designed. Any other use is considered improper and therefore negligent. Machine use is allowed only in places free from danger of explosion or fire.

During operation check for conditions of danger and immediately stop the machine should it appear to malfunction and consult the Service department. It is the Client's responsibility to verify at the time of installation and use that no conditions of use arise which are different to those indicated.

 	<b>DANGER WARNING</b>	Before setting the machine in motion it is essential that the Operator and Safety Manager have read the Instructions Manual and understood all parts of the machine and activities linked to it (Risks, Dangers, Functionality, Operation, Protections, Commands, etc.)
---	-----------------------	---

	<b>WARNING</b>	The instructions given by this manual are of a correct use of the equipment. For instruction about a correct test methodology consult the specific Standard concerning the test.
---	----------------	--

1. Choose a suitable drive point (A7) for the ground.
2. Using a threaded pipe(M16) join the drive point and the Standard rod ( A4) screwing strongly ( FIG.1 )
3. Place the percussion head (A6) on the other side.
4. Let the drive point penetrate the ground and using manual pressure push the penetrometer into the ground.
5. When manual pressure will no longer make the rod penetrate in to the ground, take off the percussion head and mount the anvil ( A2) and the drop rammer ( A1).
6. Mount on the corresponding guide rod on the drop rammer ( A1) ( FIG.2)
7. Lift the drop rammer ( A1) and let it fall freely in order to let the rod penetrate further in to the ground.
8. Continue until further penetration is not possible.
9. Place the base plate ( A9) on the ground on the penetration point and mount the graduated rod ( A3)
10. In order to obtain the penetration depth, read the value on the graduated rod corresponding to the point on the anvil (add the values of the rod already penetrated in to the ground).
11. Take off the drop rammer (A1) the anvil and the graduated rod.
12. Mount on the plate the extraction device ( FIG.3)
13. Move the lever of the extraction device from downward to upward in order to extract the trod from the ground
14. In order to extract ground samples join by a threaded pipe the grooved rod ( A5) and the Standard rod (A4) (FIG.4)
15. Place on the percussion head (A6) and turn it so that the grooved rod extracts the ground sample
16. Take off the Standard and the grooved rods from the ground.

## Decommissioning

If the penetrometer is to be no longer used, proceed as follows:

- Make the potential sources of danger harmless, such as sharp or protruding parts.
- Dismantle the machine; divide it into similar parts and dispose of according to the standards in force.

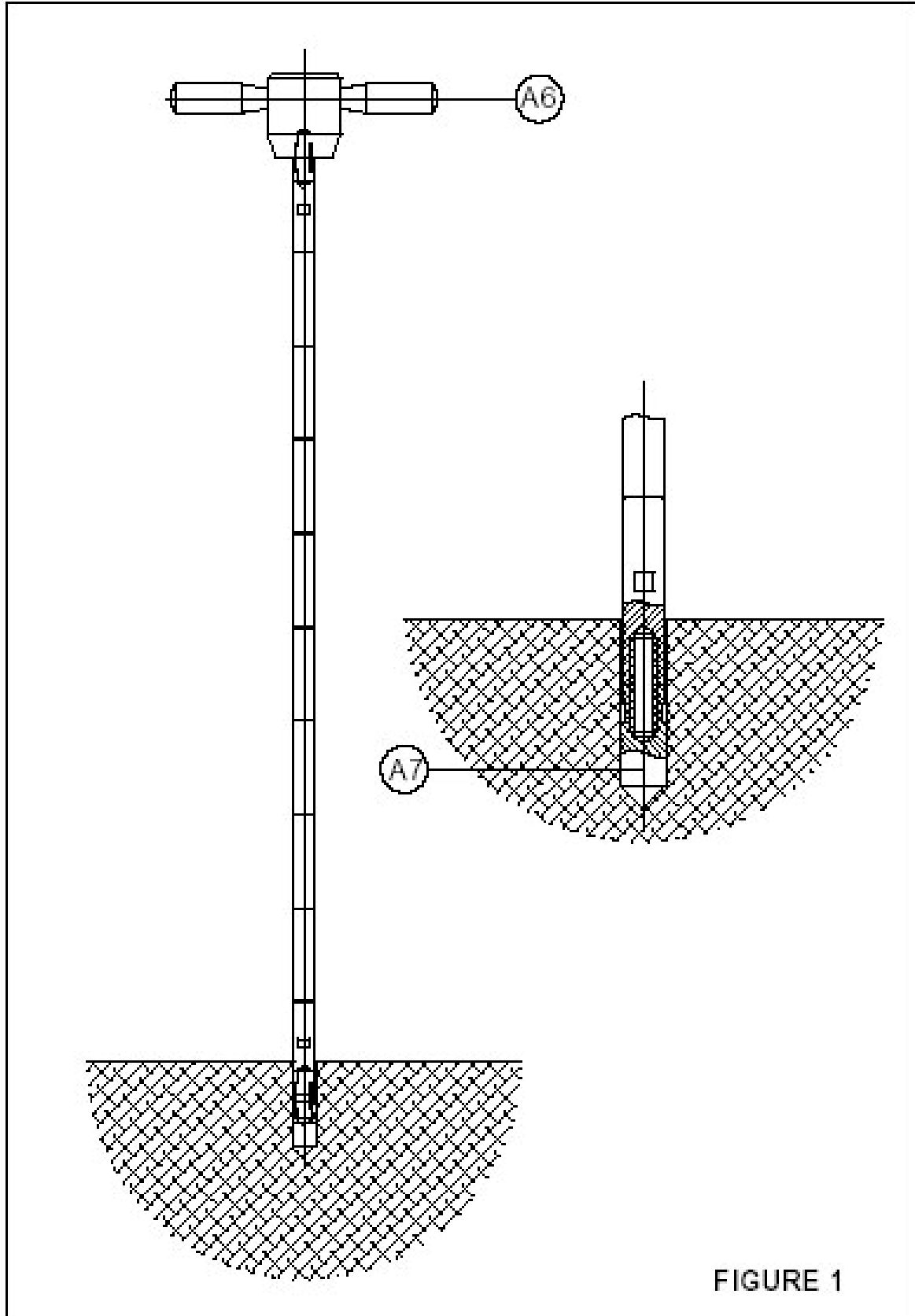


FIGURE 1

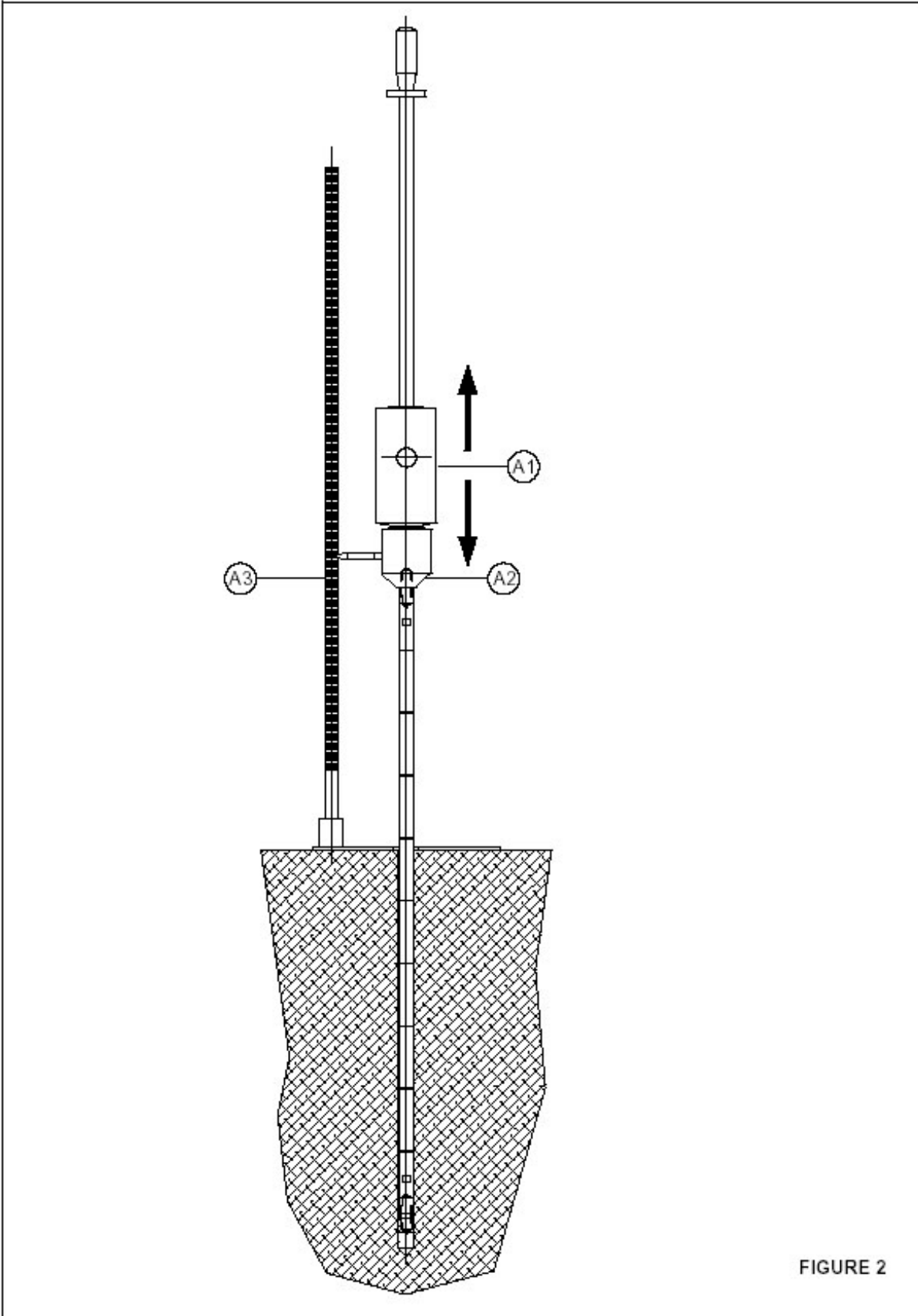


FIGURE 2

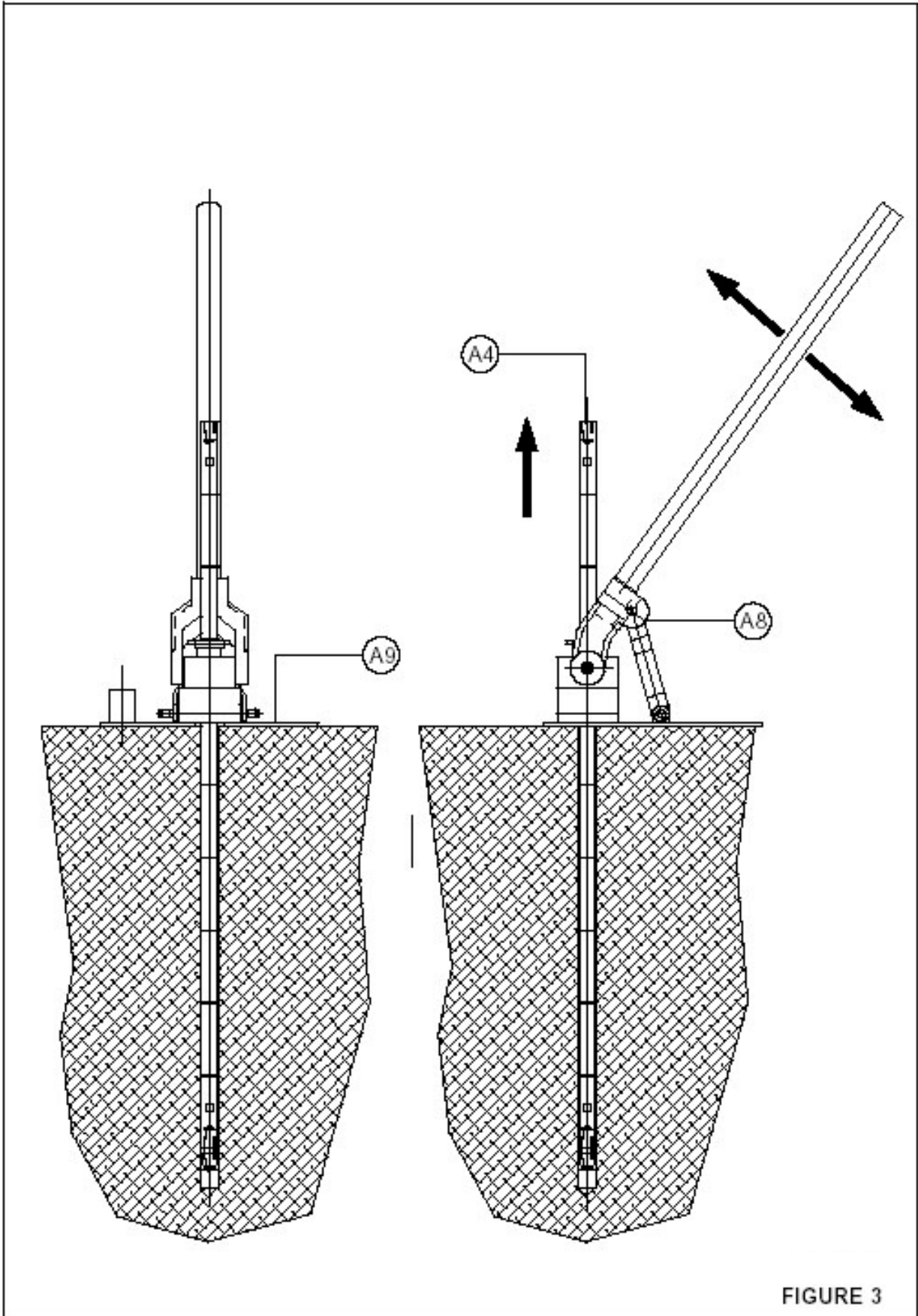


FIGURE 3



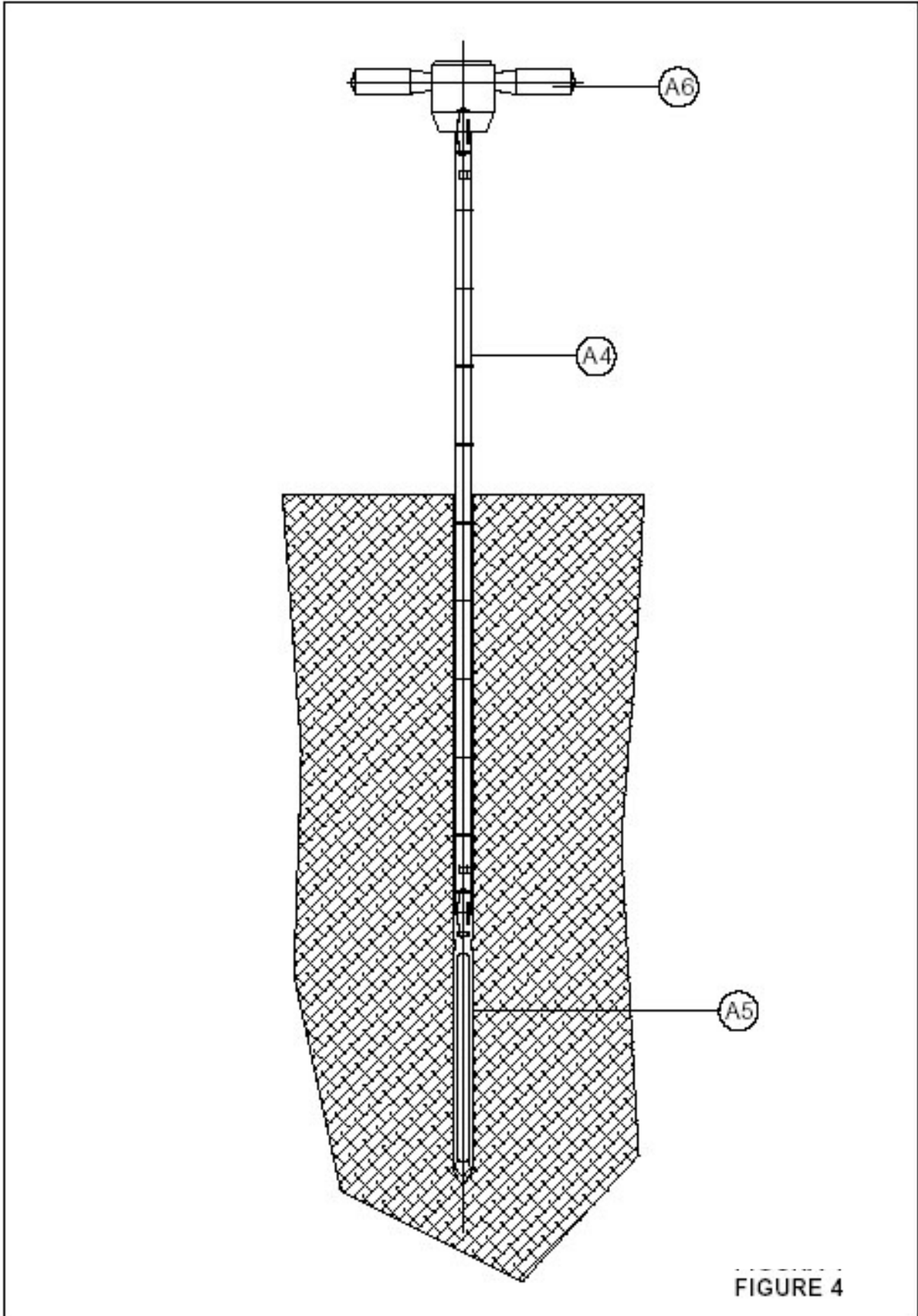


FIGURE 4