

General Operating Instructions

for the

REVEALER

ASSEMBLY INSTRUCTIONS.

Fit the Indicator Rods together (two for each cylindrical handle) and connect to the cylindrical handle spindle rods. Note that the highest number on the indicator rods will be near the handles if the instrument has been assembled correctly. Attach the mineral bracket to one handle. The handle with the bracket must be held in the right hand.

RULES FOR HOLD AND BALANCE.

Hold and Balance are very important when using the instrument. Great care should be taken in practising them before commencing any forward movement.

Grasp the cylindrical handles, one in each hand, with a firm grip, thumbs extended upwards and against the handle caps, fingers encircling the handles ensuring that the finger tips touch the palms of the hands.

Hold the handles perpendicularly in front of the body, approximately 10 inches apart, keeping the elbows to the sides of the body with the forearms extended upwards at an angle of 45° . The indicator rods should be pointed forward, parallel to each other and horizontal.

FORWARD MOVEMENT.

Take short and slow steps, in a normal relaxed manner keeping the shoulders steady and all the time ensuring that the indicator rods are horizontal.

RULES TO BE ADOPTED WHEN DETECTING UNDERGROUND SERVICES OR MINERALS.

Figure 1. This is the position of the indicator rods before and during movement.



Figure 2. This is the position of the indicator rods as an object is approached. When this movement has taken place, continue walking forward very slowly.



Figure 3. When the indicator rods move inwards and parallel in front of the body, the location of the object is below the centre of the feet.

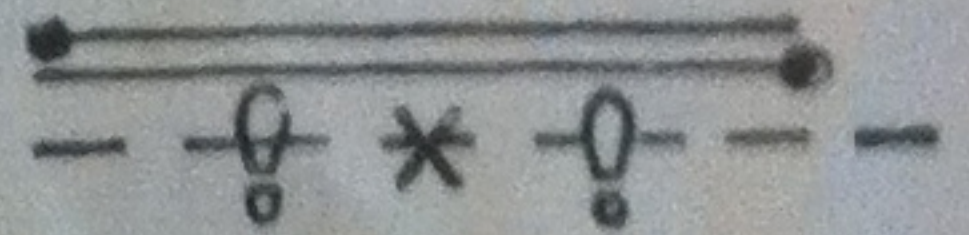


Figure 4. Move at right angles over the area to be surveyed and this will enable the plotting of the underground service to be traced accurately. By turning to the right or left on the line of the service located, the indicator rods become a "V" shape. Figure "B" — a distorted "V" means you are moving off the line of the pipes.

FIGURE 'B'

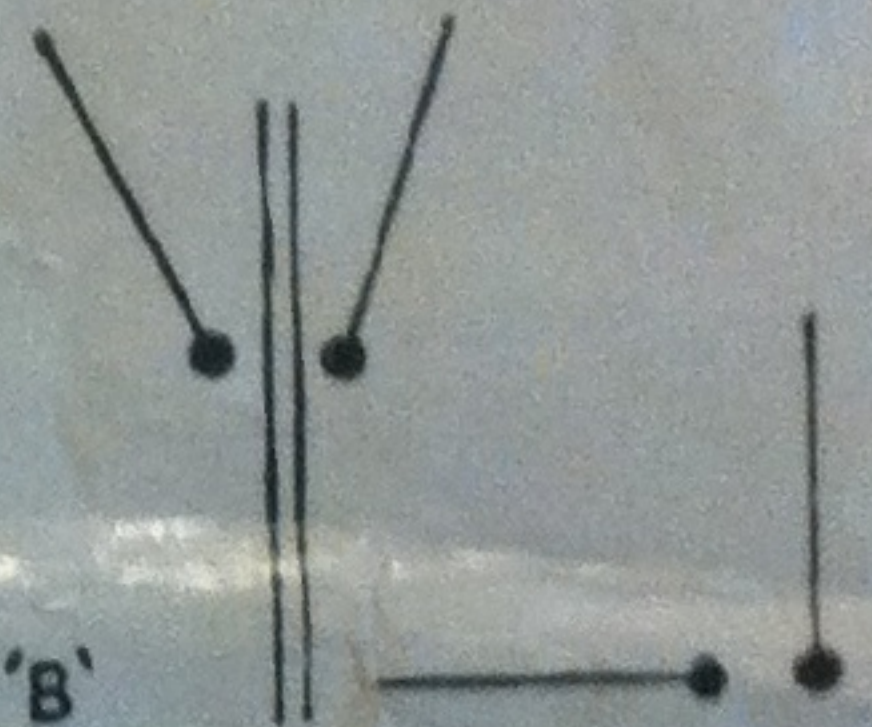


Figure 5. When a right or left hand pipe junction is detected, the indicator rods will move off the "V" position.

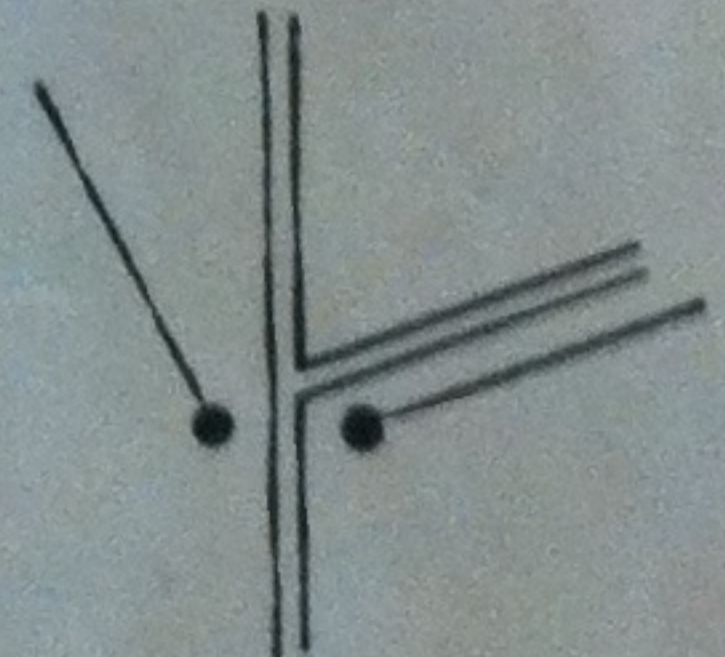


Figure 6. A section of the pipe located which is "choked" can be detected if the indicator rods return to the original parallel position.

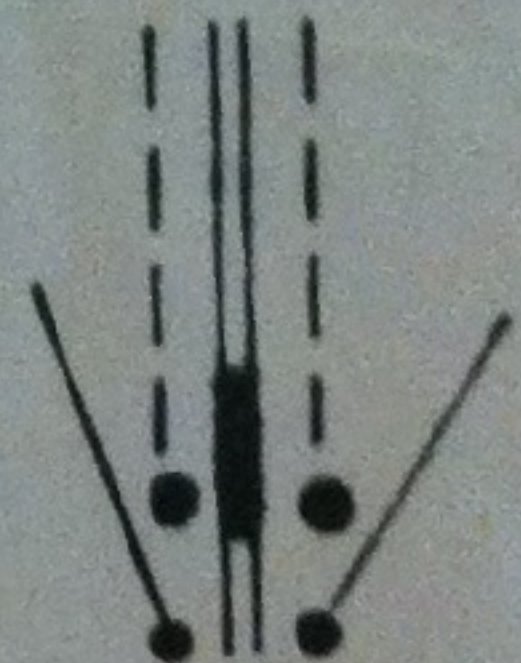
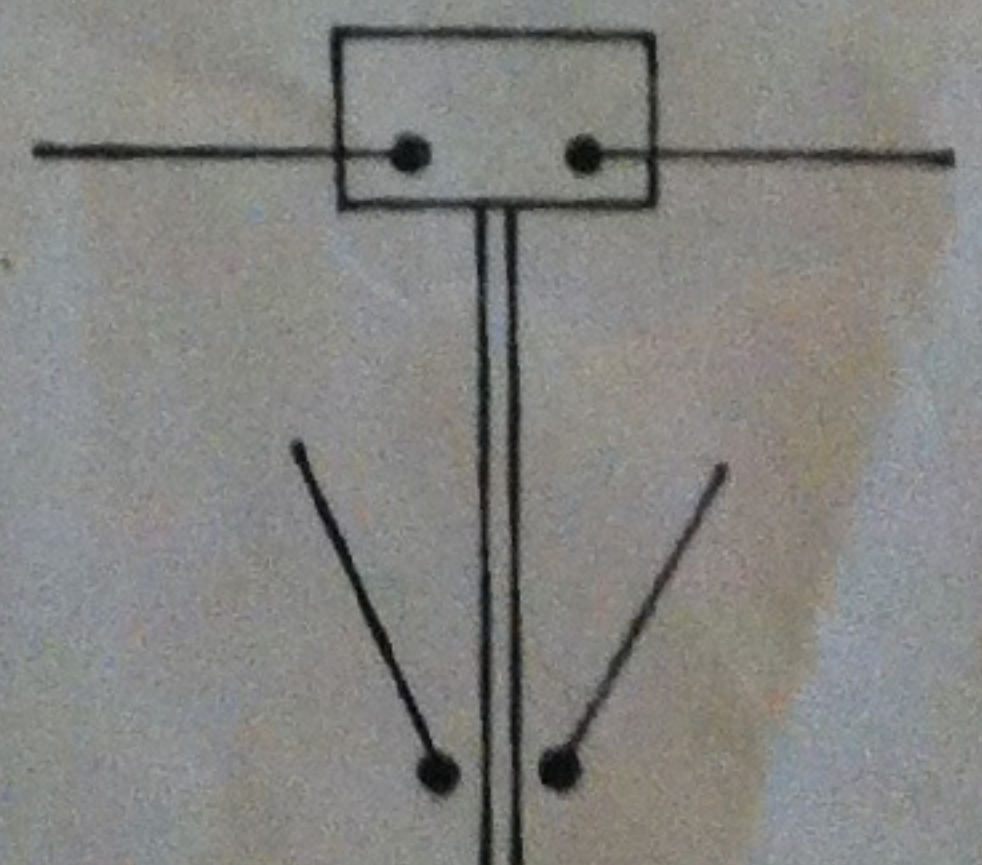


Figure 7. Position of the indicator rods when detecting buried manhole covers, stopcocks, etc.



DETECTION OF TWO OBJECTS CLOSE TOGETHER.

These can be detected if the operator, on reaching the position of the first, realigns the instrument before proceeding to the second.

METHOD FOR CALCULATING DIAMETER OF PIPES.

Locate the pipe as shown in Figure 3, and measure back two feet from the position of the centre of the feet. Step backwards and, moving slowly towards the new position, note the figures on the indicator rods — where they intersect will denote the outside diameter of the pipe in inches.

DETECTION OF PIPES IN EXCESS OF 15" DIAMETER.

The operator should walk very slowly and the rods will move outwards (figure 7) when the edge of the buried pipe is reached, then the rods will move inwards until the centre of the object is beneath the operator's feet. The same method should be used for locating the edges of shafts, tanks, etc.

METHOD FOR CALCULATING DEPTH OF THE OBJECT.

Locate the object as shown in Figure 3, then return to the starting point. Move forward again slowly until the grooves (6½" from the end of the rods) intersect. Immediately this takes place, measure the distance between the point from the centre of the feet to the location of the object — this measurement is the depth to the top of the object.

METHOD FOR DETERMINING THE COMPOSITION OF THE OBJECT

The mineral bracket has various minerals including a plastic tube for detecting voids. A process of elimination is used in determining the nature of the object located. For example:—when you have located an object, mark the ground accordingly (the point of location is mid-way between the feet), and move back to the starting point. Now take one or more combinations of the minerals in your right hand with the cylindrical handle and return in the manner already prescribed to the location point. If you have grasped the correct mineral or combination of minerals, the indicator rods will remain parallel when you return to the location spot. Other minerals than those on the mineral bracket can of course be used by the operator, depending upon the type of survey. For example:—if water is being traced, it would be necessary to hold a small tube of water in the right hand to confirm the finding and for brickwork use the carbon on the mineral bracket.

The minerals on the bracket are:—

Tin,	Zinc,	Carbon,	Copper,	Salt glaze pipe.
Void,	Iron,	Asbestos,	Lead,	Aluminium.

DETECTION OF VEGETABLE MATTER.

A sample of the material to be located is held to the detector cylinder in the left hand, the rods will then cross when the operator walks over similar material (figure 3). It is important to check carefully that no mineral is affecting the instrument, and this can be avoided by the use of the mineral bracket in the right hand.

WATER DETECTION.

When the operator approaches the water course, the indicator rods will move towards each other as in figures 1 and 2 of the general operating instructions. The rods will begin to move outwards, as in figure 7, when the operator is quite close to the position of the water, and when they are fully extended the operator is directly over the point of location. Water is identified by holding a tube full of water and the void sample on the mineral bracket to the right-hand detector cylinder. The presence of water in pipes **cannot** be detected.

INSULATOR BADGE.

To be worn by the operator above the instrument to insulate against overhead objects.

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