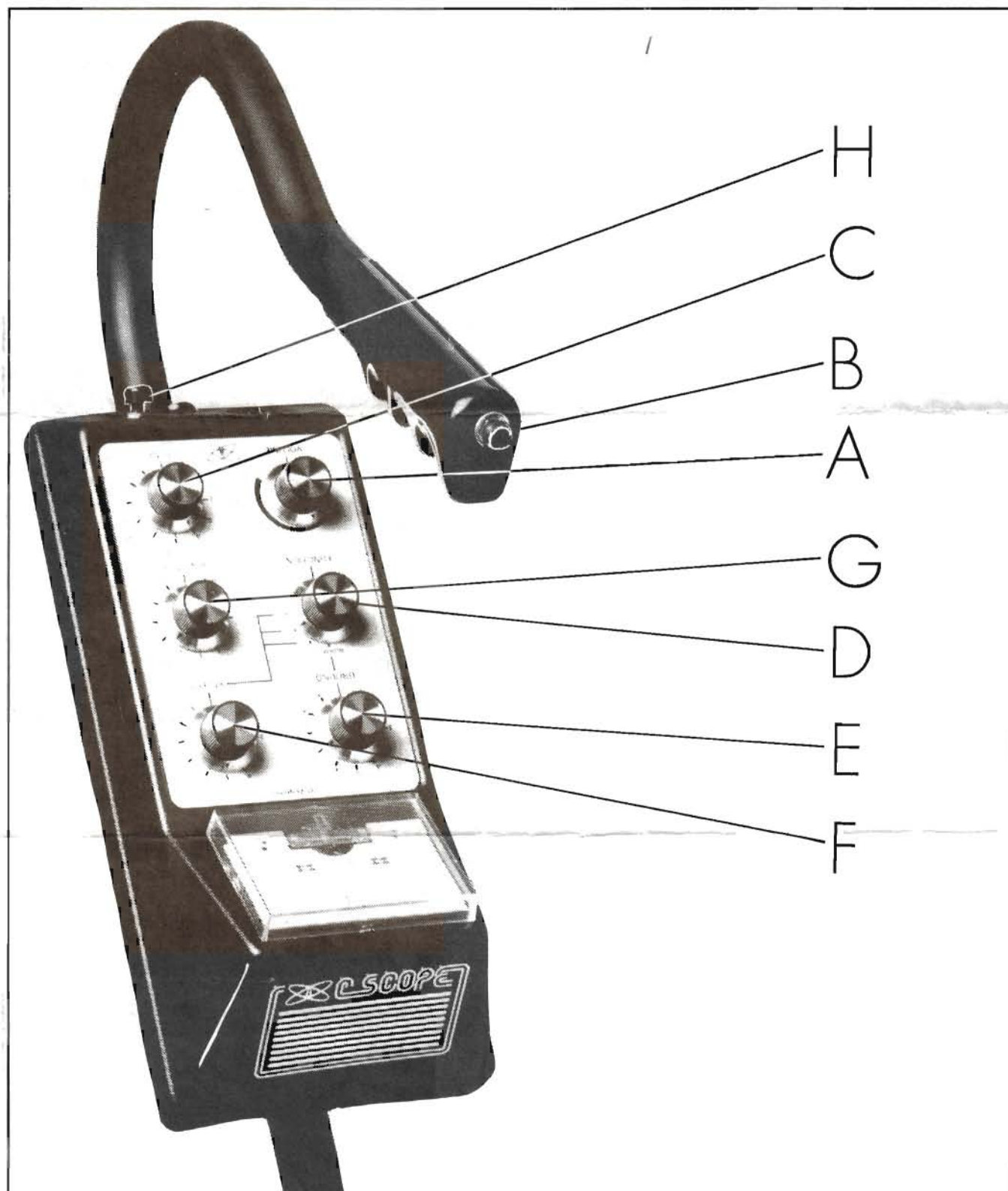




VLF 1000 DISCRIMINATOR OPERATING INSTRUCTIONS



INTRODUCTION

The C-Scope VLF 1000 is the most electronically advanced detector available and is the result of six years continued research and development by Britain's leading detector manufacturer. It operates on a very low frequency and incorporates a quartz crystal drive to ensure accurate performance in both normal and discriminate modes. The detector is designed to give the operator the greatest flexibility possible. It will exclude ground effects in its normal mode or alternatively be tuned to take advantage of wide range discrimination facility which can be varied from ignoring small pieces of iron to rejecting pull-tabs.

The ground effect in the discrimination modes is minimal on most sites but should it become intolerable the operator can reduce the ground effect by reducing the sensitivity.

The C-Scope VLF 1000 is a professional model and is manufactured to the highest standard to give you the maximum performance. The machine has been designed for easy operation, but there are several ways of using the detector. In order to get the best out of your machine and ensure correct operation it is important to spend some time before going out with your detector studying these instructions. This time will be well repaid in helping you get the best results.

DIAGRAM OF THE CONTROLS AND THEIR FUNCTIONS (see front cover photograph)

A) Volume on/off

Switches machine on and controls level of sound emitted by the internal loudspeaker or, if plugged into the jacket socket, the headphones.

B) Auto-Tune Button

Should be depressed when any control is operated and when the detector requires re-tuning.

C) Tune

Controls the reading of the meter and functions in conjunction with the push button in the handle grip, which must always be depressed whilst the tuning is adjusted. The tuning is normally set for a meter reading of approximately mid-scale so that the sound is just audible. (This is the setting for most sensitivity).

D) Function

The 'Function' switch essentially controls the degree of discrimination of the machine and operates in conjunction with the 'Ground' and 'Reject' controls as follows:

E) 'Normal'

The machine operates as an **all** metal detector and discriminates against ground mineralisation. The 'Ground' control allows fine adjustment to enable the effects of the soil to be completely eliminated.

F) Discrimination Modes (D1, D2 and D3)

As the 'Function' switch is rotated clockwise the detector operates so as to discriminate more and more severely with the 'Reject' enabling a fine adjustment of each position. (Note that the 'ground' control is not operative when the machine is operated in the discriminate modes).

D1

The machine will reject most small iron objects such as nails, nuts, bolts, etc., but still detect all coins, silver paper and pull-tabs, etc.

D2

As D1 but also rejects silver paper from cigarette packets.

D3

As D2 but also rejects pull-tabs and aluminium foil. This setting should be used with great caution as certain coins will be rejected on this range, i.e. modern 'silver' coins made from a copper-nickel alloy.

G) Sensitivity

This control allows reduction of the sensitivity of the machine and is used mainly on the discriminate modes on sites where there is excessive ground effect combined with a lot of junk making the 'Normal' mode unuseable. Turning the sensitivity control towards 'Nil' will also reduce the depth penetration.

H) Battery Check

When the button is depressed the meter will indicate the state of the batteries irrespective of the settings of the panel controls provided that the machine is switched on. Replace batteries when needle falls below the red line.

ASSEMBLING YOUR C-SCOPE VLF 1000

When you receive your C-Scope VLF 1000, the detector will have been broken down for shipment. To assemble, simply insert the lower stem into the upper stem and tighten the knurled locking collar. This knurled collar has a plastic collar inside which causes the two sections of the stem to lock at the required point.

Before testing, it is necessary to purchase two PP6 batteries. To fit these turn fastener anticlockwise through 90° and pull out. Open control box outwards, and slide the batteries under the battery clip, and snap on connectors. If you intend to operate the instrument with the headphones, insert the headphone jackplug into the OUTPUT SOCKET at the top of the control box, and the detector is ready for operation.

HOW TO TUNE THE VLF 1000

1. DEPRESS AUTO-TUNE BUTTON

This is the button on the end of the handle. It should be pressed while making any initial tuning or discrimination adjustment. If, later on, the detector is thrown off tune by something, correct tuning is restored by pressing the button. No need to readjust the other controls!

2. SELECT NORMAL MODE

Before switching on, set the controls as follows:

Ground to 5
Reject to 5
Sensitivity to Maximum
Tune to 0.

3. RAISE THE SEARCH HEAD WELL CLEAR OF THE GROUND AND METAL OBJECTS

4. TURN THE VOLUME CONTROL FULLY CLOCKWISE

This also switches on the detector.

5. TURN THE TUNE CONTROL UNTIL SOUND IS JUST HEARD FAINTLY IN THE SPEAKER (OR HEADPHONES IF PLUGGED IN)

6. RELEASE THE AUTO-TUNE BUTTON

If you look at the meter pointer you will find that it is now approximately halfway across the scale.

GROUND ELIMINATION

When using the detector in the normal mode, ordinary soil has little effect when the ground control is at 5. However, you may notice that some types of soil cause a change in volume as the head is brought close to the ground. This 'ground effect' can be eliminated by adjusting the ground control. If the volume **increases** as the head is brought towards the ground proceed as follows:

- Raise the head well clear of the ground.
- Press the auto-tune button and keep it pressed.
- Turn the ground control to 6.
- Release the button.
- Lower the head to the ground.

If the volume still increases when the head is lowered this means that the ground control hasn't been tuned far enough yet. So repeat the procedure but this time set ground to 7. If the volume now **decreases** when the head is lowered, ground has now been turned too far, so repeat with the control tuned back to between 6 and 7. You will soon find a position where there is no change in volume when the head is lowered. The detector is then correctly set for 'ground elimination'.

If the volume falls when you lower the head with ground at 5, carry out the same procedure but turning the ground control the other way, to 4, etc.

You'll soon learn to make these adjustments quite quickly. Occasionally, however, you'll find that it is not possible to 'eliminate the ground' in this way. There are two possible explanations:

1. The piece of ground to which you have been lowering the head contains buried metal. Try again nearby and if you now succeed go back to the first spot and treasure hunt!
2. You have struck a patch of 'difficult' ground. A typical example is a beach saturated with salt water. In such cases the normal mode cannot cope, but you can still get ground elimination by turning the function switch to D1 and repeating the ground elimination procedure but this time using the reject control instead of the ground control which is now inoperative.

If you immerse the search head in salt water even D1 cannot cope. You must then use D2 (setting up as before) and put up with a certain amount of ground effect. See below under "Discrimination" for how to use the detector in these circumstances.

DISCRIMINATION (D1, D2, D3 on the Function Switch)

The VLF 1000 rejects unwanted objects by a reduction in volume as the head passes over them. Various amounts of rejection can be selected by the Function switch. The reject control provides fine adjustment. The ground control is inoperative when the Function switch is set to one of the D positions.

As usual, the auto-tune button should be kept pressed when setting up the detector for discrimination. Begin with these settings:

- Reject to 5
- Sensitivity to Max
- Tune to 0
- Volume to off.

Turn the Function Switch to D1. Press the auto-tune button (and keep it pressed). Turn volume to maximum (fully clockwise). Turn tune until sound is just audible. Release the auto-tune button.

The detector is now set to give a small amount of discrimination. If a small iron nail is now brought near the head the sound will disappear. Some adjustment to the size of the iron objects that will be rejected in this way is possible by pushing the auto-tune button and turning the reject control. A clockwise movement increases the rejection capacity. Silver paper is not rejected on D1 but it is on D2 as are larger iron objects. D3 rejects most kinds of 'junk' with suitable adjustment of the reject control ring-pulls can now be rejected. But some useful objects are also rejected, so use D3 with great caution.

The more discrimination you use the worse will be the ground effect. On dry sand this may not be a problem but on other soils ground effect may give false indications of objects. The volume will change as the head is brought near the ground.

To minimise this problem proceed as follows:

- Use the smallest amount of discrimination which will work on the site.
- Set the tuning with the head held at the normal search height, e.g., an inch above the ground level.
- Keep the head exactly at the correct height.

If you still have problems, turn down the sensitivity. The detector still operates even with sensitivity set to 0 and ground effect is reduced. For information, detection range is halved if this sensitivity control is rotated fully from maximum sensitivity to minimum sensitivity. Accordingly, only reduce sensitivity as far as is necessary to overcome ground effect.

DISCRIMINATION IN THE FIELD

If the site is relatively junk free, the detector can be used in the Normal mode with the detector adjusted for 'ground elimination'. When an object has been located then the detection mode can be reset by depressing the push button and changing modes to D1. The object can then be re-scanned. The mode can then be reset as before to D2 and then rescanned, and also to D3. By using this mode the target object can be analysed. The drawback to this method is that sensitivity to cupro-nickel coins is less on D2, or on D3 than on Normal or D1, so a ten pence coin could be ignored on D2 or D3 although it could be detected on Normal or D1. The golden rule here is dig the object unless there is a clear rejection of the target object, i.e., a negative meter swing or decrease in volume. Used correctly this method will give the most comprehensive analysis of the nature of the target object. It is extremely useful to bury a range of objects such as an iron nail, a piece of silver paper, a pull-tab, a copper coin, a silver coin, and a cupro-nickel fifty pence piece, and familiarise yourself with the reactions in the various modes.

If iron is a problem on a site and the Normal mode is giving too many signals to be analysed, the detector can be used on D1 as the main operational mode, and when an object is located, the modes changed to D2 and D3 in turn and the target object rescanned.

If silver paper or pull-tabs are problems, and the Normal mode is giving too many signals to be analysed, the detector should still be operated on D1 as the main operational mode, and as previously when an object is located, the modes changed to D2 and D3 in turn.

6. RELEASE THE AUTO-TUNE BUTTON

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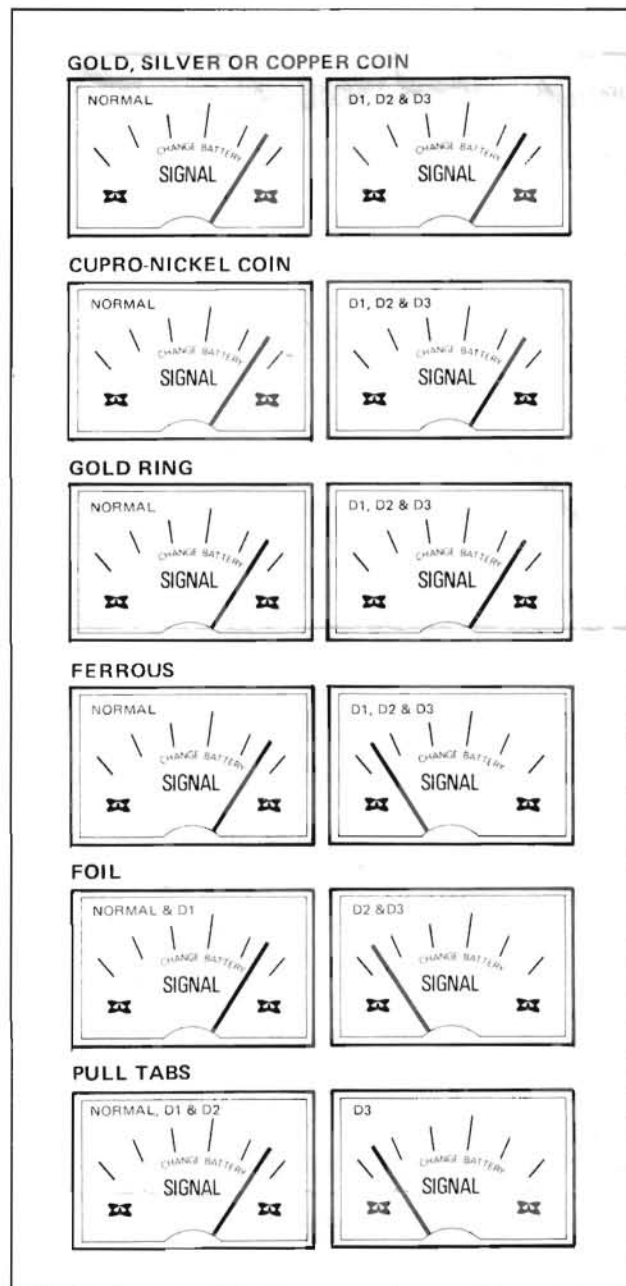
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N.B. D3 should only be relied on or used on particular beaches in exceptional circumstances where pull-tabs occur every few feet.

Many experienced users will choose the most suitable mode for a site, which will either be Normal or D1 and dig all positive signals that occur in the mode chosen.

Below are pictorial illustrations of the reactions of the VLF 1000 in the various modes to different target objects. These are of course generalised for simplicity and it is essential that these instructions are read in full to appreciate the detector's reaction to the individual types of coins or metals.



BATTERY CHECK

The battery check button is on the end of the control box, to the right of the headphones socket. To check the batteries, press this button with the detector switched on. (It doesn't matter what the control settings are).

With new batteries the meter pointer goes nearly to the right hand end of the scale. As the batteries run down it goes less far. When it fails to reach the red line it is time to change both batteries. (To gain access to the batteries insert a coin in the slot of the 'screw head' between and below the headphones socket and battery check button.

Turn it anti-clockwise through one right angle, making the slot vertical. The 'screw' — actually a stud — can now be pulled out, allowing the control box to be opened to reveal the batteries, which are held in place by spring clips. Make sure the detector is switched off at the volume control before replacing batteries. The snap connectors should be removed from the ends of the batteries before taking the batteries out. Note that there is a 'right way round' for the snap connector; it will not stay put if applied the wrong way. It does not matter which connector goes to which battery so long as it is connected correctly).

OPERATING NOTES

In the normal mode ordinary soil has very little effect. Indeed, it can be made to have no effect at all, by means of one simple adjustment which you will quickly learn to carry out. Once the ground has been 'eliminated' in this way you will find that there is no change of sound as the head is lowered towards the ground or raised from the ground. The only thing that affects the sound is buried objects capable of conducting electricity. In general this means metal of any kind — copper, iron, aluminium, silver, gold.....

The one disadvantage of the normal mode is that it does not discriminate between metals — though it does perform the useful job of discriminating against the particles of iron ore which permeate some soils and can cause false indications with some detectors. Such 'mineralised' soil can be 'tuned out' in the normal mode just like ordinary soils. Learning to 'tune out' the ground is excellent practice in preparation for getting to work on the D modes. D modes are used for object discrimination.

Here the detector reacts according to the nature of the target object. It can be set to go silent when the object is a tinfoil bottle cap, a piece of silver paper, a cigarette packet, an iron article, a ring-pull, but will still sound out when the object is a coin. The price paid for this is that the detector now becomes sensitive to the ground. It will sound off if the head is not kept at the correct height above the surface, or go silent and less sensitive. Also as more and more discrimination is used the detector becomes blind to some types of wanted object such as 5p cupro-nickel pieces. This is where the need for experience enters. The user must get to know just how much discrimination to employ on any particular site. The actual operation of the VLF 1000 on 'discriminate' is easy: it's the ability to assess how to use it that calls for skill.

No matter what the site conditions, the VLF 1000 is made easy to operate by the provision of an auto-tune button. This is in the end of the handle and if the detector should drift off tune or be affected by changes in the ground the correct tuning is instantly and automatically restored by pressing the button.

DETECTION RANGE

Detection ranges will vary, depending on the length of time an object has been buried, and in what sort of ground. Generally speaking, the best results will be obtained in well-compacted, fairly dry soils and when the object has been buried for a year or two. During this length of time, the metal is able to interact with the salts in the ground, and becomes more easily detectable. Under these conditions, detection ranges will be, at their maximum 13" on a Victorian penny, and 6' on a large object such as a metal chest. The worst conditions for detecting are on loosely compacted or freshly dug ground, or when the object has only recently been buried. In these conditions, detection ranges will be reduced.

Whilst searching it is important to remember that the search head should be kept as close to the ground as possible. This ensures maximum depth penetration, since there is a minimum detection range lost in the airgap between the search head and the ground. (see diagram 4).

TREASURE HUNTING TIPS

1. Sweeping

For extremely small object searching, such as coins, rings, nuggets, etc., lower the search coil to within one inch of the ground. Sweep the coil from side to side in a straight line in front of you. Keep the coil at a constant height as you sweep from side to side. Move the coil at the rate of one foot per second. (See diagram 3).

After you have become familiar with the instrument the sweep rate may be increased to two feet per second. The optimum sweep rate must be determined by each operator.

The detector should be held comfortably in the hand, with the coil held as closely to the ground as possible. As the detector is scanned from side to side in front of the operator, the search coil should be advanced approximately two-thirds the diameter of the coil. This keeps the operator moving ahead, and it allows some overlapping of each sweep. This overlapping ensures that nothing will be missed. It is as well to note here that the operator **SHOULD NOT RUSH**. This is one of the most common mistakes made by detector users. If you rush, you will not adequately cover the ground.

2. Determining the Target Size and Depth

An operator who is familiar with his instrument will be able to do an excellent job of determining object size, shape and good depth before he digs. This technique is learned from careful analysis of the audio signals coming from the detector. Each time a signal is heard, listen for any peculiar characteristics it may have; determine over how large an area you get a detector signal; and try to "outline" the object before you dig. Listen for the sharpness or dullness of the signals and determine the magnitude or strength of the signal. After digging the object compare the object size, shape, depth and position in the ground with signal information you received before digging. After careful analysis of many digs, you will learn to "read" the hidden target before digging. **NEWLY BURIED OBJECTS CANNOT BE DETECTED AS DEEPLY AS OBJECTS WHICH HAVE BEEN BURIED A YEAR OR LONGER.**

USE IN THE FIELD

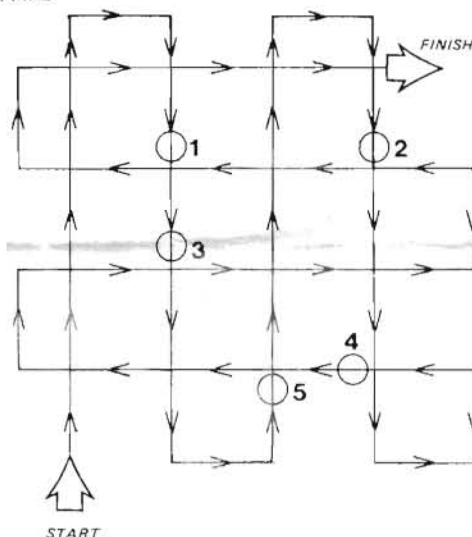
Treasure hunting can be a profitable and a rewarding hobby, if approached in a patient and diligent manner. Time spent researching to locate a worthwhile site for a search can be time wasted if your search is hasty and erratic. To achieve maximum results, it is important, then, to decide on your approach to each particular site, in advance of the actual search.

Tactics will be decided by the type of site — it is more profitable to scan a small area thoroughly, than to conduct a haphazard search of the total site. However, when the site is too far away for you to make several return visits, a plan should be adopted which gives maximum site coverage, at the same time as indicating the most likely areas for detailed search.

One method is to divide the area into large squares by use of a 'criss-cross' search pattern. Starting along the left hand perimeter, search in a straight line, marking the location of any finds with small sticks, until you have covered the

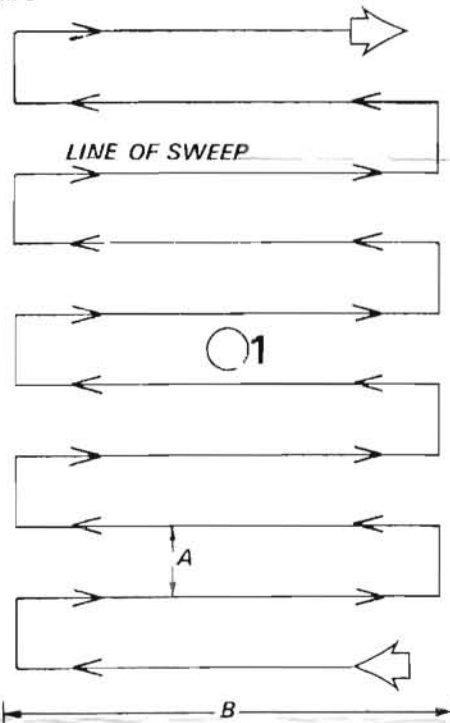
length of the site. Then, moving approx. ten feet to the right, search in a straight line parallel to the first line of search. This pattern should be repeated until the right hand perimeter is reached; then follow a similar pattern **across** the tracks of the first lines of search. (See diagram 2).

DIAGRAM 2



On arrival at the site a criss-cross search is made marking the positions of finds:- 1, 2, 3, 4, and 5. A detailed search of the area around the finds is made on completion of the criss-cross search as in Dia. 3.

DIAGRAM 3



An area ten foot square is marked out around the find located by criss-cross search. This is then divided into strips which are carefully searched.
Distance A = width of the detectors pick-up area.
Distance B = length of a comfortable sweep.

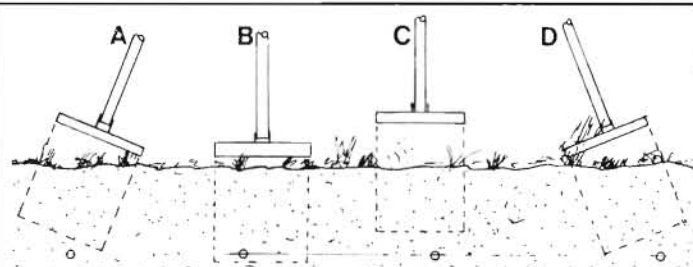


DIAGRAM 4 It is essential that the search head is kept close and parallel to the ground to avoid missing finds as in A, C, and D

CARE AND MAINTENANCE

The working life of your detector will be shortened by careless use or neglect of the unit. Think of your C-Scope as a scientific instrument — NOT A TOY. C-Scopes are designed to withstand rugged handling on any terrain, but mis-use or lack of due attention will tell in the end.

After using your detector in a hostile environment (salt water, sand, etc.) the exterior parts of the casing should be flushed with clean water, paying particular attention to the head, and carefully wiped clean. Foreign particles in the control box can be removed by brushing carefully (or with compressed air or vacuum cleaner).

The life of controls may be extended by periodic (100 hours of use) application of small quantities of light lubricant to the spindles, threads and knob grub screws ('3 in 1' or similar household oil is suitable). This operation requires the knobs to be removed.

Light packing grease should be smeared on the threads of the locking collar, and at the same time, the head fixing bolt. Do not store the detector in a damp place.

If these suggestions are followed your detector will give you many years of efficient use.

IN THE EVENT OF A FAULT

All faults or queries must be notified direct to C-Scope Metal Detectors (UK) Limited, at Candle International House, Wotton Road, Kingsnorth Industrial Estate, Ashford, Kent, TN23 2LW.

If there are any problems quote the serial number on your copy of the guarantee form or inside the control box, and write to the above address or telephone Ashford 29141. Please state as clearly as possible the nature of the problem.

Please do not send faulty detectors back to the retailer. Please send them direct to C-Scope with an explanatory letter.

Please check thoroughly with these operating instructions before sending your instrument back, particularly ensuring that the batteries are not simply run down.

C-SCOPE REPAIR CONTRACT

C-Scope have the reputation for providing the treasure hunter with a quality metal detector and a first class after-sales service.

The guarantee given with a C-Scope metal detector is one of no-quibble. All faults which occur within the first year of purchase are repaired free of charge provided that the machine has not been grossly mis-used.

However, should a fault occur after the guarantee has lapsed, expensive repairs may be necessary. For a small yearly premium, your detector will be repaired **free of charge** — all you pay is the cost of postage. (see guarantee card).

IMPORTANT NOTICES

Following the one year guarantee period, C-Scope will correct all normal detector wear and failures at factory cost, plus shipping. A service charge of £2.50 plus shipping costs, will be made on any instrument that is sent to the factory and needs ONLY a battery. Please check your detector thoroughly before sending it in.

C-Scope is continuously improving its products. Because of this, we reserve the right to make changes at any time. If you receive an instrument that has some feature that is slightly different from what is shown in the brochures that you have seen, or if a switch or control is relocated, etc., rest assured that this change is an improvement.

You may sell or trade your detector with the full assurance that the guarantee will continue for a full year after the original purchase, regardless of who owns the instrument.