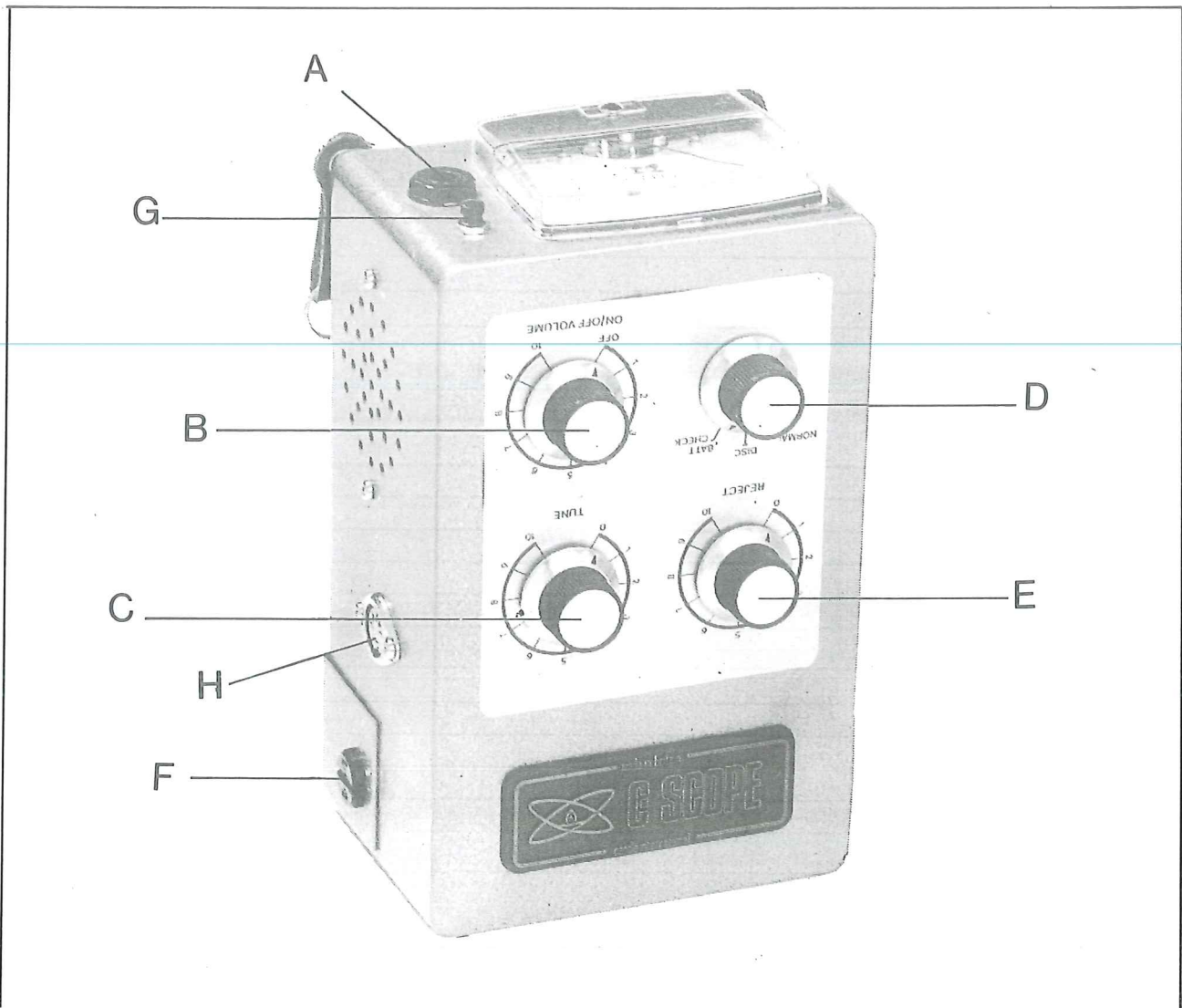


# OPERATING INSTRUCTIONS



## G-SCOPE 900 AUTO DISCRIMINATOR



As the owner of a C-Scope Metal Detector, you are now ready to participate in one of the world's most interesting and rewarding hobbies.

The C-Scope 900 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 detector 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.

## ASSEMBLING YOUR C-SCOPE

When you receive your C-Scope 900, the detector will have been broken down for shipment. To assemble, simply insert 5 pin plug into socket (H) on right hand side of Control box.

Before testing, it is necessary to purchase 2 PP6 batteries. To fit these, turn fasteners (F) anticlockwise through 90° and pull out. Slide battery compartment cover downwards.

Snap on battery terminals, and slide the batteries into compartment. Replace compartment cover and fasteners. Check that the batteries are connected by switching the detector on at control (B). If you intend to operate the instrument with headphones, insert the headphone jackplug into the OUTPUT SOCKET (A) at the top of the Control box, and the detector is ready for operation.

## CONTROLS

ON/OFF, VOLUME Control (B).  
NORMAL/DISCRIMINATE and BATTERY CHECK Control (D).  
REJECT TUNING Control (E).  
FINE TUNING Control (C).

Before commencing an actual search, it is advisable to get to know the controls of the detector and the kind of signals the detector will give. To do this, use the detector indoors. Lay the detector over a table with the head hanging over the edge. Make sure there is no metal in the vicinity.

## OPERATING PROCEDURE

### 1) Ground Exclude/Normal Mode

#### a) Tuning

With the detector lying on the table as previously described set NORMAL/DISCRIMINATE control (D) to NORMAL, and the REJECT control (E) to mark (5) on the scale. Switch on at the VOLUME ON/OFF control (B) and rotate to mark (10) on the scale.

Depress PUSH BUTTON (G) and adjust TUNE control (C) until the tone just begins to break through and the meter needle is in a central position on the scale.

The detector is now adjusted to the 'Ground Exclude' setting. The correct setting may vary in actual use and can only be done accurately in the field on site.

The correct method in the field is to raise the head about two feet above the ground and lower slowly to the ground. If the signal decreases this is 'negative ground effect' and can be eliminated by tuning the REJECT control (E) clockwise by a small amount and retuning by pressing the PUSH BUTTON (G). (If the signal increases this is 'positive ground effect' and the REJECT control should be rotated anti-clockwise.)

Release the PUSH BUTTON and repeat the procedure until no change in signal occurs as the head is lowered to the ground.

**NOTE:** If you are unable to adjust out the effects of the ground, then you may have been lowering the search head over a metal object. If this is the case you should move to another spot and try again.

It is important that the REJECT control is at exactly the right setting. When this has been set, you should note the position and always go back to this same setting for use in the GROUND EXCLUDE MODE, as a starting point.

### b) Detecting

To test for the type of signal you will get, take a large coin or metal object, and with the detector still on the table, tuned as previously described, move the object towards the search head. You will note the volume will increase quickly as you begin to pass over a metal object, with the loudest sound occurring when the search coil is centred over the object. As the object passes beyond the search coil, the sound will quickly fade. Since C-Scope utilises its Total Response (Wide Scan) search coils, the object can be detected across the full width (back to front) of the search head.

## 2) Discriminate Mode

### a) Tuning

Set the NORMAL/DISCRIMINATE Control (D) to discriminate, (keeping push-button depressed). If the REJECT Control (E) is still set at Mark 5, this is the approximate setting for the rejection of silver paper. To check how 'fine' this tuning is, take a small piece of silver paper about 2" x 2" from a cigarette packet or chocolate paper and move it towards the search head, making sure you are not wearing rings or a watch on the hand you are using. If the tone increases when the silver paper is moved towards the label rotate the REJECT Control (E) anti-clockwise and repeat. If the signal goes down rotate the REJECT Control (E) slightly clockwise and repeat. This should be repeated until no change in signal is obtained. It is important to set this control carefully and once the setting is correct, the push-button AUTO circuitry will reset the position automatically. The detector is now set to reject silver paper. To test the detector's reaction to other metals take the 'coin' test piece and move it towards the head, the signal will increase. Then take the ferrous test piece and move it slowly towards the detector head: the meter needle and audio signal will go down.

**NB** Should the detector become 'overloaded' to the point where the needle remains fixed at one end of the scale (i.e. by passing over a very large piece of iron) the preset tuning position can be re-located by simply depressing the push-button.

## USE IN THE FIELD

### 1) General

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. 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. How long a line you can sweep depends upon the area which is being searched. If the area you are searching is free of trees, rocks etc. you can sweep a line limited only by the length of the detector stem.



The detector should be held comfortably in the hand, with the coil held as closely to the ground as possible. However, **the greater the mineral content of the ground, the higher the coil must be held above the ground.** 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) Discriminating

For use in the field, the detector will usually be operated in the NORMAL mode. This allows the operator to use the detector without retuning, and with the minimum of interference from ground effect. When a signal is obtained, the detector is moved to one side of the object and switched to the DISCRIMINATE mode, keeping the push-button depressed. The AUTO circuitry retunes the detector, and the search head is passed over the object again and the two signals compared. The following diagrams illustrate typical readings using NORMAL/DISCRIMINATE. These tests also

showed that this method is a very effective way of discriminating. It is possible, though, to alter the REJECT Control (E) to reject other items, but experiments should be made by the user prior to field use.

It is important to remember that the REJECT Control setting determines the level of discrimination — the higher the level of discrimination the less sensitive the detector becomes.

On the silver paper reject setting (which is the one we recommend) iron and silver paper are rejected as shown in the diagrams. Depth penetration to ring-pull tabs is severely reduced, although ones near the surface may still be picked up. Non-valuable items made of similar metals to modern coins will also give a positive signal. In some cases only a small positive reaction will be obtained on DISCRIMINATE setting. In these cases it is as well to dig the object and not to write it off as silver paper or a ring-pull, especially if the object is small.

The C-Scope.900 can also be used in the DISCRIMINATE mode alone, but the signal will vary in the field due to changes in ground conditions from one area to another, and also if the distance between the detector and the ground is varied. You will probably have to hold the detector head at a fixed and close distance from the ground, and detect carefully to achieve best results. To do this, set the REJECT Control (E) as previously described to DISCRIMINATE, and commence searching.

## 3) Determining the Target Size and Depth

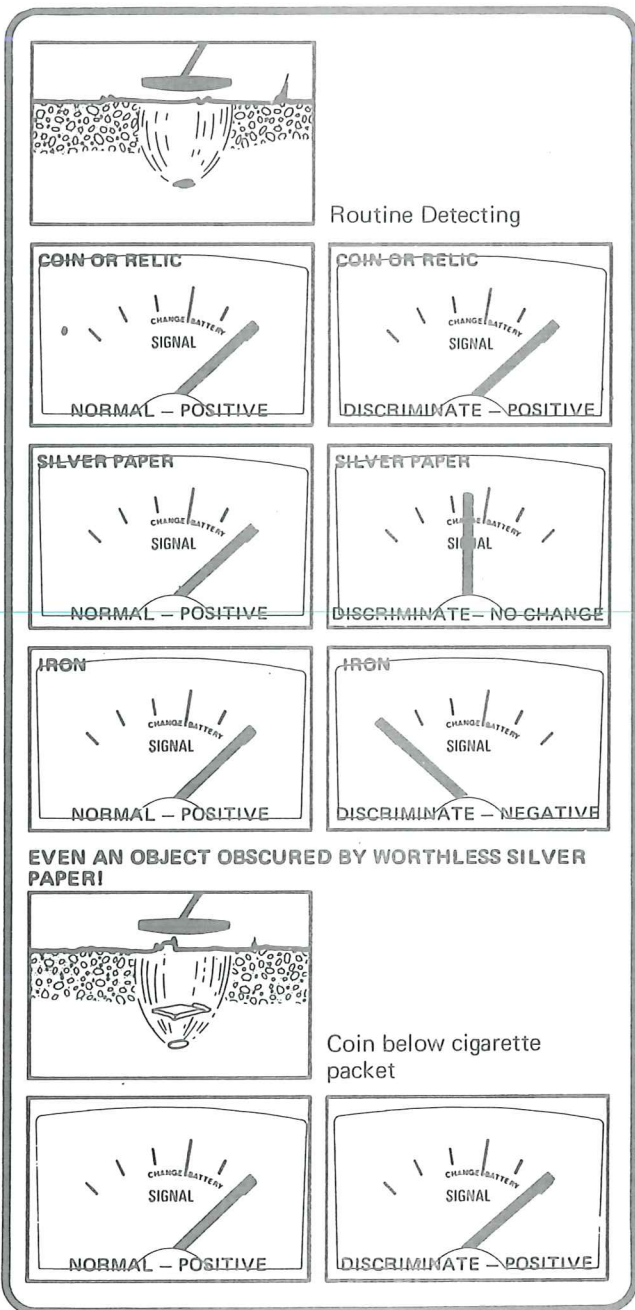
An operator who is familiar with his instrument will be able to do an excellent job of determining object size, shape, and depth before he digs. This technique is learned from careful analysis of the audio signals coming from the detector. Each time a signal is heard, listen for any peculiar characteristics 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.**

## 4) Recommendations for Use

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.

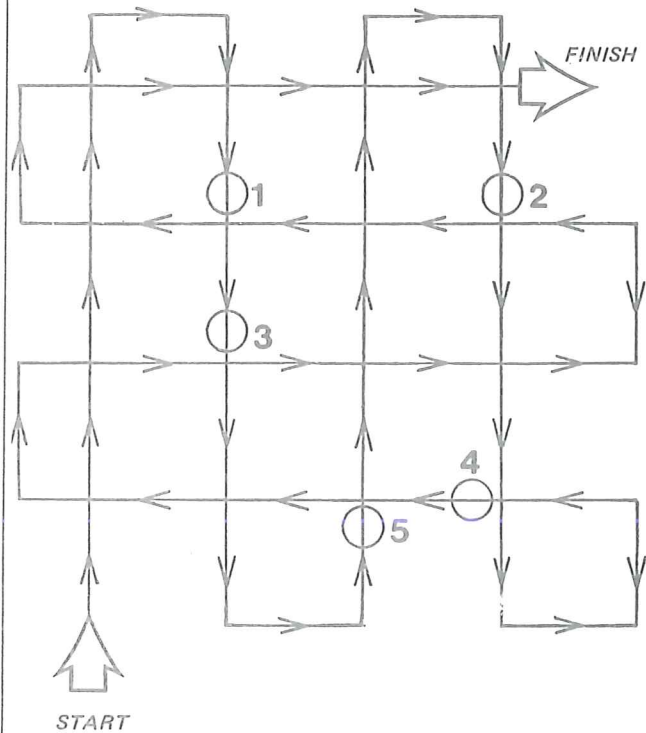
Tactics will be decided by the type of site — it is more profitable to scan a small area thoroughly, than to conduct a haphazard search of the total site. However, when the site is too far away for you to make several return visits, a plan should be adopted which gives maximum site coverage, at the same 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 Diag. 2).



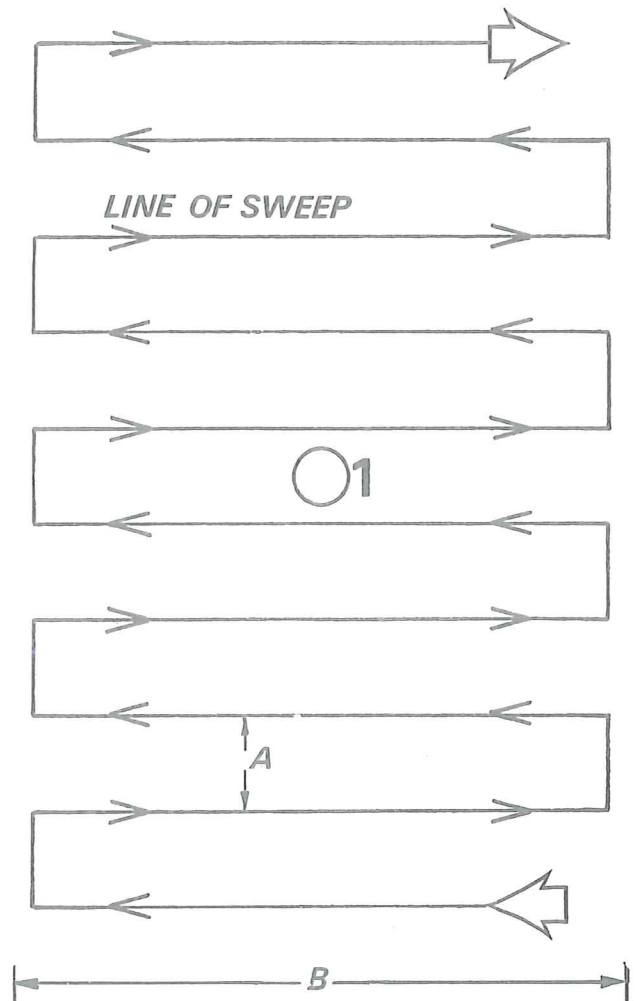
# USE IN THE FIELD

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.

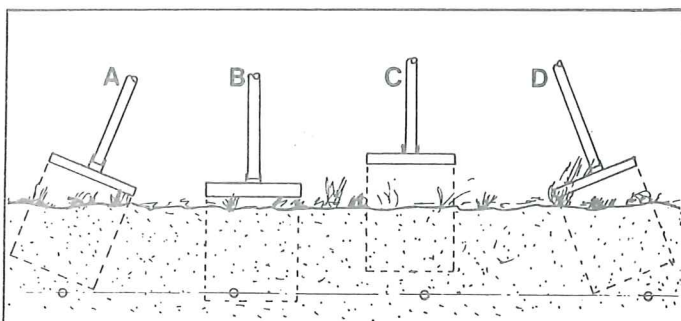


DIAGRAM 4 It is essential that the search head is kept close and parallel to the ground to avoid missing finds as in A, C, and D

## 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 on 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 up to 16" on a large coin, 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.



It quite often happens that where one find is made, other finds will be made in the immediate vicinity. Accordingly, the higher density of 'markers' placed where your finds were made, indicates the most likely spots for a detailed search.

The detailed search is made by marking out strips of a width determined by the sweep of the detector, and moving forwards the approximate diameter of the search head after each sweep until the 'strip' has been completely covered. The adjacent strips are covered in a similar manner, until the complete area has been thoroughly searched. (See Diag. 3).

Wooden pegs and string are ideal for marking out these areas, but very often natural land marks such as trees, rocks, and plants can prove just as effective with practice.

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 minimum detection range lost in the airgap between the search head and the ground. (See Diag. 4).

Be as tidy as possible when extracting the finds from the ground. Nobody likes to see a footpath or field with great 'pits' left in it through careless digging — and holes left for people to trip on can be dangerous! So, please, follow the treasure hunters 'Code of Conduct'.

Use a blunt trowel, or a medium-sized screwdriver to cut away the sod, and extract a core of earth from beneath this. Check that the core contains the find, before breaking it open. Avoid the use of sharp instruments (such as knives), since a scratch on a coin can reduce its value considerably.

After extracting the find, replace the soil and put back the sod as neatly as possible.

Another useful tip is to 'collect' all pieces of silver paper or junk that you come across — if you simply throw them to one side, you will probably end up detecting them again later!

## CARE & MAINTENANCE

### a) Care of your C-Scope

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 the controls may be extended by periodic (100 hrs 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.

### b) Replacing Batteries

Two PP6 batteries are used and they will last for approx. 40 hours of actual use. When the unit is not in use, it is IMPORTANT to make sure the detector is switched off or battery drain will result. As the batteries get weaker, the volume deteriorates, and the detector will become unstable. To replace batteries undo black plastic screw (G) anti-clockwise, a quarter turn. Take out this screw and lift the top of the control box. Take out the old batteries and replace with new ones.

## IN THE EVENT OF A FAULT

All faults or queries must be notified direct to C-SCOPE METAL DETECTORS (UK) LTD., 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 with a new battery 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.