CSCOPE

METAL DETECTOR

OPERATING INSTRUCTIONS

VLF/TR 2000D VLF/TR 3000 ADC

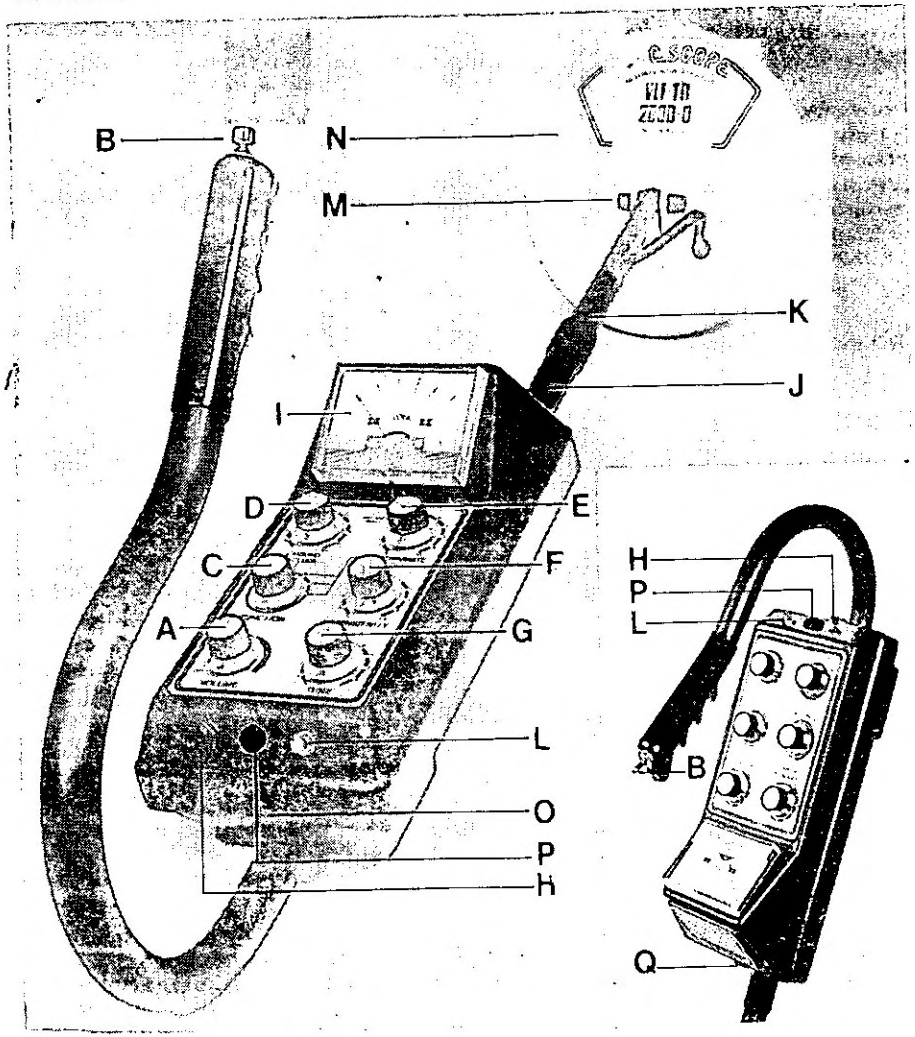
INTRODUCTION

Congratulations on your choice of metal detector. The VLF TR 2000 D and the VLF TR 3000 ADC are two of the most advanced metal detectors built anywhere in the world.

C-Scope metal detectors are designed and manufactured by a team who represent the greatest accumulation of detector knowledge in Europe. Each metal detector they design and build is in response to needs dictated by treasure hunters all over the world. Rarely has so much time and effort been spent with metal detecting enthusiasts in the creation of machines like the 2000 and 3000.

Both these detectors have been designed to be operated in the most relaxed manner possible and therefore have been given simple time saving controls which leave you to concentrate on target signals not on setting up the machine. It is advisable that you read these instructions fully before singling out any particular section for further experimentation. Remember also that this electronic equipment is designed to be used out of doors so that when experimenting indoors account should be taken of metallic interference.

DIAGRAM 1



CONTROLS – WHAT THEY ARE, WHAT THEY DO

A. On/Off Volume

This control turns the machine on and off and regulates the level of audio output. This is particularly useful when headphones are used as full volume is often painful.

B. Auto Tune Button

The most important and often used control on the detector. It operates in conjunction with the tune control which once set need not be touched again as the pre-set level is found automatically when the auto tune button is pressed. Adjustment of any control on the detctor, the influence of climate and ground will throw the detector off tune, optimum tuning level is regained by pressing the auto tune button when this occurs.

The auto tune button is generally used during control change and adjustment, to save time.

B.(ii) ADC Control
VLF TR 3000 ADC Only

A new control, this not only acts as an auto tune button but also as a function selection switch when worked in conjunction with the function control (C).

For example, if working on an inland site such as a ploughed field, a great deal of iron may be detected. By selecting G-D1 on the function control (C) and pressing ADC control to the left, exploration can be made in the ground excluding all metal mode. If an object is detected an analysis can take place by pressing the ADC control to the right. In so doing D1 iron rejection mode is selected and tuned and the search head can be passed over the object again. If a negative (no signal) response is received then the object is iron and a quick push of the ADC control to the left will select G, ground exclusion mode for optimum search performance.

C. Function Selection Switch

This allows the operator to choose the best mode of operation to suit a site.

For example, G Max (3000 ADC only) may be selected to achieve super deepseeking on a known site which is expected to yield valuable finds.

G – D1 might be selected on a ploughed field when ground exclusion takes care of any iron mineralisation when searching and D1 will save the user digging up endless bits of iron such as nails, when a target is located.

G – D2 will suit a picnic site where iron and silver paper often appear as target signals and need rejecting quickly.

G – D3 will be selected when it has been found that a large number of ring pull can tops are to be found and are severely impeding progress. This mode should only be used as a last resort as coins can also be rejected.

N. B. Comparisons can also be made between D1 and D2 and D1 and D3 and so on, by simply turning the function selection switch and using the ADC control as an auto tune button when pressed to the right. This is particularly useful on wet salt sand where D1 mode is needed to reject the beach ground effect.

D. Ground Exclusion Control

This control is worked in conjunction with G max (3000 ADC modes only) and G only. The effect of ground mineralisation (usually coinciding with the best site) can be tuned out by this control in the G/G max ground exclusion all metal mode. Positive ground effect makes the detector sound off as if metal is present and hence the ground exclusion control needs to be turned up bit by bit until it is neutralised. Likewise negative ground effect (mainly inland sites) can be neutralised by turning the contro in a minus direction. In practice a setting of 0 is most often used.

E. Reject Control

This control is most useful when used in conjunction with the function selection control (C). It helps the operator 'fine tune' the amount of discrimination for example D1 mode allows for iron rejection. However in practice 2" nails will be rejected around 5 on the control. Similarly D2 is a silver paper rejection mode, in practice 5 is the most common setting to reject cigarette packs.

The size and shape of iron combined with its orientation will determine reject settings. In practice large iron objects will not be rejected.

F. Sensitivity Control

When discriminating continuously the effects of ground mineralisation can be reduced by decreasing the sensitivity of the detector. This is particularly useful for beginners. In G mode sensitivity can be set to maximum as no ground effect 'masks' signals.

G. Tuning Control / (Master)

This main tuning control is pre-set by the operator to achieve the optimum threshold signal. Deviation from the threshold signal produced by control change, ground effect or drift can be rectified simply by pressing auto tune button B. to regain the optimum setting.

H. Control Box. Auto Tune Button or ADC Control (3000 ADC only)

These controls are used only when the detector is used with the hipmount option and (can be ignored when operating without the hipmount accessory) until they have been connected as per Hipmount assembly procedure.

I. Signal Intensity Meter

(i) The meter acts as a battery check when the battery check button (L) is pressed.

(ii) The meter will give a visual indication of the optimum tuning level when the needle centres.

(iii) When discriminating the meter will show a negative (needle swings left) to unwanted items.

(iv) When pinpointing a target signal full deflection of the meter to the right will indicate the centre of the object.

J & K. Adjustable Stem

A fully adjustable stem allows for the best possible operating attitude to save user fatigue and increase finds. The lower stem K has a plastic bottom section to reduce its influence on the search head.

L. Battery Check Button

Located on the top of the control box one sustained press will give a visual guide to battery condition. Batteries should be changed when the meter needle approaches the change battery sign. The check does not work with rechargeable batteries. (See also Battery Check Procedure)

M. Head Locking Nuts

These ensure that the search head (N) is locked in the most comfortable attitude and the one which offers the best search position, i.e. parallel to the ground. Never use tools to lock these nuts as damage may occur.

N. Search Head

Outwardly C-Scope search heads are simple - but they are in fact complex and should be treated with care. They are designed to transmit and receive a magnetic field and detect changes in it which occur with the presence of metal. Designed to be waterproof further waterproofing should be made if continuous work is envisaged under water. Always clean off salt water as this contains minerals.

Because of the fine tolerances to which the search head has to be manufactured, sudden temperature changes will show signal drift and initially constant retuning is needed until the search head temperature meets that of the air temperature. (Up to 30 minutes is not unusual.)

O. Control Box Fasteners

These are designed so that access to the battery compartment can be made quickly and simply without the need of special tools. One 90° turn with a coin will release the fasteners which are situated at the top and bottom of the control box.

P. Headphone Jack Plug Socket

Provided for the metal detector enthusiast to use standard (¼" Jack plug) headphones mono or stereo. These will increase finds as they cut out background noise so that faint deep signals can be heard. Battery drain is also reduced as they use less power than speakers.

Q. Search Head Cable Connector

The search head cable connector allows for the easy dismantling of the detector for carrying or storage. It will only plug in the control box socket one way and must not be forced.

ARM SAVER OPTION (2000 & 3000 Models)

The arm saver relieves the strain of long periods of searching by passing the load of the search head and stem along the forearm. The control box can then be mounted on the belt again saving more tiresome weight. With less fatigue more concentration can be sustained and more finds made. Particularly suitable for Treasure Hunting Speed Events and Industrial uses.

ASSEMBLING YOUR DETECTOR

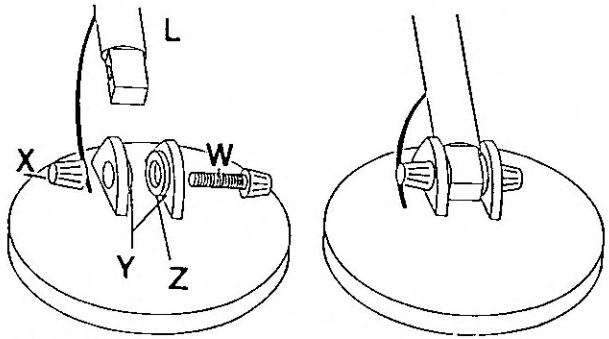
Your new C-Scope VLF/TR 2000-D and VLF/TR 3000 ADC are supplied to you in a broken down form for ease of shipment

To assemble your C-Scope sections J, K and M (Diagram 1) need joining together to form the integral adjustable stem and head assembly.

Attach stem section J to control box handle by screwing fixed knurled nut onto thread of control box handle. Now loosen knurled locking collar at the other end of section J to allow stem section K to slide into it. To tighten simply turn anticlockwise with fingers, adjusting the stem to a comfortable length.

Once the stem sections are in place, the search head may be attached using the bolts provided. Push the lower stem between the search head brackets ensuring washers Y and Z are in place. Push search head bolt W through search head bracket and lower stem L and tighten with fingers after connecting Nut X.

DIAGRAM 2



Having attached the search head to the stem, coil the search head cable around the stem, connect end of cable to control box plug, ensuring that the plug-in connector prongs are correctly matched before tightening.

Final adjustment of the stem either lengthening or shortening may require more cable turns or fewer cable turns as the case may be. This is best acheived by rotating the stem in the appropriate direction as the stem length is adjusted.

DIAGRAM 3

2. BATTERIES

(i) Before you are able to use your detector it is necessary to purchase the correct batteries. Three options are available, your VLF TR 2000D/VLF TR 3000 ADC will take either 2 x PP6 batteries, 12 HP7, held in battery clips, or 12 Nickel Cadmium rechargeable batteries which give optimum performance for the life of the charge.

Whichever type of battery you purchase ensure they are of reputable manufacture as over 80% of metal detector faults are traced to faulty batteries or poor connections.

(ii) to fit your batteries remove the two control box fasteners O with the help of a coin, turning them 90° anti clockwise.

Lay the top of the control box next to the lower half ensuring no strain is placed on any wires connecting the two halves. (Diagram 3).

Connect the battery you have chosen, PP6, HP7 or Nicads, to the connection in the lower half of the control box and push the battery under the plastic securing clips. Make absolutely sure that the connections are firm and tight and the clips prevent the batteries from moving.

Replace the control box top and replace the plastic fasteners.

Always check batteries strength with full volume turned on and Tune control turned fully clockwise.

QUICK GET STARTED PROCEDURE FOR VLF/TR 2000-D

(All controls should be turned fully anti-clockwise before start)

1. Set Grounds Exclusion control to 0.
2. Set Function control to G (D1 on wet salt beaches)
3. Set Sensitivity control to 0.
4. Set Discriminate level to 5.
5. Depress Auto Tune button.
6. Turn On/off Volume control fully on clockwise.
7. Rotate Tune control until sound is just heard through speaker (clockwise).
8. Release Auto Tune button.
9. Commence search, making broad sweeps, from left to right with search head parallel to ground and one inch above it.

HOW TO TUNE YOUR C-SCOPE VLF/TR 2000-D

Familiarity with the control of these professional units will enable you to get the best from your C-Scope in all conditions. It is best to gain experience using your new C-Scope at less than its optimum settings until your skill and understanding of the unit can be fully utilised and enjoyed.

(i) Turn all controls fully anti clockwise before switching on the machine. This will give you a "clean sheet" from which to start.

(ii) Turn On/off Volume control (A) (Diagram 1) fully clockwise; this will ensure that you are able to hear the relevant signals given off.

(iii) Depress Auto Tune button (B).

(iv) Still keeping Auto Tune button (B) depressed, turn tuning control (G) until faint threshold signal is heard coming from the loudspeaker, and the visual signal meter centres.

(v) Release Auto Tune button.

When pressed the Auto Tune button will automatically adjust the level of tune to that selected using tune control G. Every time a control is changed or adjusted the Auto Tune button should be depressed to retune the detector. Any change of tune brought about by ground or climatic conditions can be retuned to the optimum simply by pressing Auto Tune button (B).

Ensure before commencing procedure that your detector search head is at least 3ft from any metal object including those hidden in the floor.

SELECTING THE FUNCTION & LEVEL OF DISCRIMINATION

Function Selection

With your detector turned on and tuned in you need to select the optimum search (mode) function. On most inland sites your C-Scope can be used as an analytical detector. This means searches are conducted in (G) ground exclusion all metal mode and analysis of target signals is made by switching to D1 iron reject or D2 silver paper and iron reject or D3 foil, ring pull, silver paper and iron reject.

* Depress Auto Tune button before function selection of discrimination level setting and release after threshold signal has returned, and meter centred.

* After each mode is selected the search head must be swept over the target signal again.

When analysis has taken place the function switch is returned to (G). During every change of function the Auto Tune button must be depressed until the threshold signal returns and the signal meter centres.

Choosing the Discrimination Level

As you now appreciate the degree of discrimination is selected on function control D1, D2 and D3 to a low level to reject iron silver paper and so on. It will probably be necessary to set higher discrimination levels to reject larger pieces of the unwanted items

For example small pieces of iron will need a low discrimination level setting on control (E) when D1 has been selected to reject it, and larger pieces at high level setting on control (E).

When a discrimination level has been selected it remains the same in all functions D1, D2, D3 therefore D1 5 rejects nails, D2 5 rejects cigarette packets and nails, and D3 5 rejects foil and 1 and 2.

GROUND EXCLUSION

The (G) position on your VLF/TR 2000-D has been provided so that no metal object can be missed either because it is ferrous or because the ground mineralisation is masking it (ground effect). This is why throughout this instruction booklet the user is advised to search in this mode where possible and analyse in other modes.

The G function works in conjunction with the ground exclude control. The ground exclude control only works on G. For most inland sites 0 on the ground exclude control will take care of any ground effect. However, if when lowering the machine to the ground after tuning in the air the meter needle falls to the left and the tuning signal decreases then there is negative ground effect present. To overcome this simply turn the G exclude control anti clockwise (–) notch by notch while raising and lowering the machine until the meter and the signal remains still.

If, when tuned, the detector search head is lowered to the ground the tuning signal increases and the meter needle rises then positive ground effect is occuring. To neutralise this simply raise the search head turn the G exclude control clockwise (+) lower the search head until no movement of the meter or rise in tuning signal is heard.

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 G 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 discriminate control instead of the ground exclude 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 IN THE FIELD

If the site is relatively junk free, the detector can be used in the (G) 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 re-scanned, and also to D3. By using this method 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 G or D1, so a 5-pence coin could be rejected on D3 although it will be detected on G, D1 or D2. 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 site and the G 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 re-scanned.

If silver paper or pull tabs are problems, and the G 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

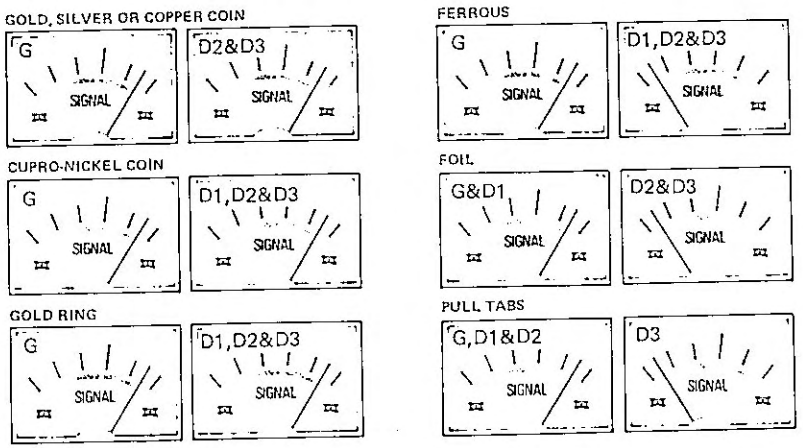
N.B. D3 should only be relied on or used on particular beaches in exceptional circumstances where pull tabs occur every few feet. Ground effect will be severe in D3 and therefore sensitivity control should be turned down (–) to reduce this.

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

Below are pictorial illustrations of the reactions of the VLF/TR 2000-D 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.

N.B. Always use the least amount of discrimination. If you are not finding silver paper for example why set detector to discriminate against it? Refer also to 'Anomaly Zone' (P. 11).

DIAGRAM 4



The sensitivity control should be used to reduce ground effect in the discrimination settings. The higher the discrimination the worse the ground affects the machine showing itself as a wildly fluctuating meter needle and an unsteady signal.

To reduce ground effect on difficult sites or to make searching less tiresome, the sensitivity (gain) of the detector can be reduced (0 to -5) to a maximum of ⅓ loss of total sensitivity, but ground effect will be decreased by about 2½ times.

Alternatively when searching in G or in discrimination on sites where the ground is flat and contains few minerals to upset the machine, sensitivity may be turned up to (0 to +5) increasing detection range by about ⅙ accompanied by an increase in ground effect (however little) of 2½ times.

If the sensitivity control is used on maximum in discrimination where ground effect is severe a continuous false "target signal" will be given off masking any real target signal from a metallic item. It is therefore best not to confuse "in air" detection range with those in the ground.

QUICK GET STARTED PROCEDURE FOR VLF/TR 3000 ADC

Ensure that the detector is well away from any metal object seen or unseen before attempting the following procedure:

1. Turn all controls fully anti-clockwise.
2. Set Ground control to 0.
3. Set Function control to G-D1 (D1 on wet salt beaches)
3. Set Sensitivity control to 0.
5. Set Discrimination control to 5.
6. Press ADC switch to the left to select G to the right to select D1 on wet salt beach. This will also tune the machine in conjunction with tune control.
7. Turn On/off Volume control fully clockwise.
8. * Still with ADC control pressed to left or right, rotate tune control clockwise until signal is just heard through speaker and meter needle is central.
9. Release ADC control.
10. Commence search, making broad sweeps from left to right with search head parallel to the ground and about an inch above it.

*Initially several seconds may elapse after switching on, before tune reaches optimum.

THE VLF/TR 3000 ADC

The VLF/TR 3000 ADC looks very similar to the VLF 2000 in appearance and most of the controls operate in a similar manner. It is strongly suggested that the instructions for the operation of the VLF/TR 2000 are read first as many controls are duplicated.

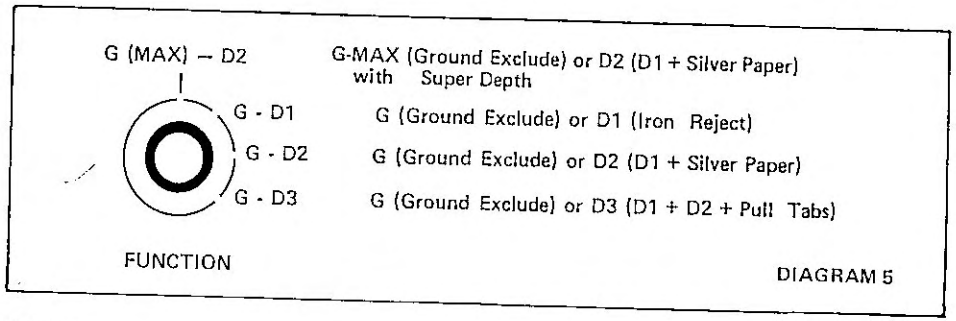


DIAGRAM 5

G MAX

The VLF/TR 3000 has two significant features which set it apart from other detectors. The first of these features is the G-Max function which gives the detector a super deepsearching mode of operation.

This is an all metal mode combined with ground exclusion and when selected ground effect should be neutralised using the ground exclude control as described previously.

This feature is intended for use on sites where very little scrap metal contamination is to be found or sites which have been covered before by other metal detectors and now need a deep searcher to weed out the very deepest objects previously undetected.

This is not a general search mode as ordinary (G) will do this job with added capability of being able to select instantaneous analysis of find.

Incorporated in the ADC control is an Auto Tune button which means that if this function is selected instant retuning takes place when the control is pushed to the left.

It should be noted however that when G Max is selected on the function control (C) the ADC switch should be pushed to the left only. If retuning is then necessary pushing to the left will re-establish the ideal performance setting.

WARNING In G-Max (very high gain) all external influences are exaggerated, i.e. temperature drift, radio interference and and number of target signals hence progress can only be slow.

G-MAX/DISCRIMINATION

When G-Max is selected and the ADC control pushed to the left, super deepseeking all metal ground exclusion is available.
Should a site become tiresome because of the amount of junk being detected, perhaps in isolated patches, then by pushing the ADC control right (low gain) ordinary depth penetration discrimination equivalent to D2 setting on the function switch is selected.
By sweeping over the object again slowly the response of the object can now be noted via the audio signal and the visual signal meter.

NB: Ground effect will be severe in D2 mode.

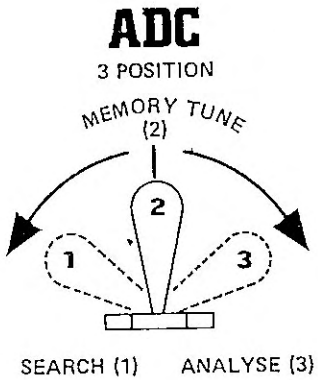
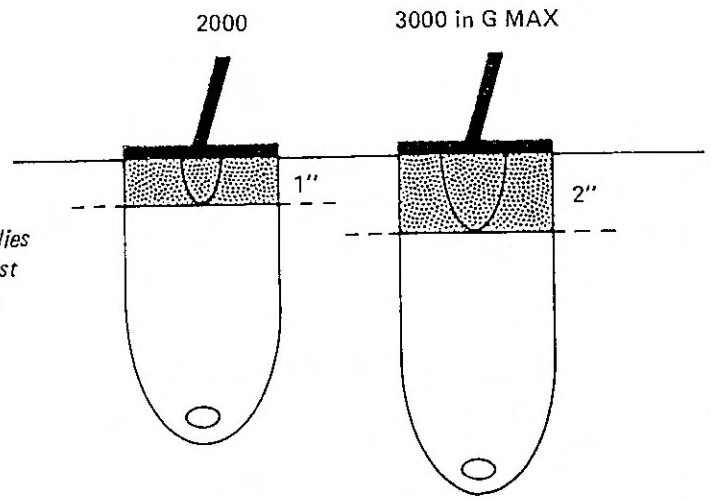


DIAGRAM 6

Therefore after a target signal is detected in G-Max a check can be made by analysing the signal simply by pressing the ADC control right. If the visual signal meter swings left and the audio signal fades away silver paper or iron has been rejected. If the meter remains central and the audio signal remains at threshold then the object is beyond the detection range in that mode and should be located again on G-Max (push ADC left).
After pinpointing the object should be dug.
If a signal is still received in ADC D2, then of course it should be dug.

G-MAX AND THE ANOMALY ZONE

DIAGRAM 7



In the shaded section, anomalies can occur whilst discriminating.

Beneath the centre of the search head of all makes of metal detector which use multi coils lies an anomaly zone.

Generally speaking the characteristics of this area are directly opposite to those on the controls. For example, if D1 iron reject is selected small iron fragments within one inch of the search head will react positively instead of negatively.

Because the G-Max setting is extremely high gain (extra depth) this anomaly zone is larger up to 2" from the search head. Under some circumstances thin narrow objects such as a coin edge-on may well give a negative response on the meter and a negative audio response on the speaker. This will be followed by a full scale deflection of the meter and a continuous sounding note. If this happens simply retune by pressing the ADC switch either right or left until meter needle centres and sound returns to threshold.

This reaction will mean that an object lies within 2" of the search head and further analysis can take place by switching to function G-D1, etc. to test the object for desirability.

THE ADC SWITCH AS A TUNING CONTROL

The ADC switch has been designed to incorporate function selection and auto tuning in a finger tip control which will mean much speedier search and analysis and less fatigue. The operator should refer to the auto tune switch instruction given for the VLF/TR 2000-D this switch acts in the same way and should be used to tune the 3000 ADC under the same circumstances.

Tuning and re-tuning is automatically achieved when the ADC control is pushed firmly right or firmly left, and held momentarily in this position.

THE ADC CONTROL AS A FUNCTION SELECTOR

The ADC switch works in conjunction with the function switch as shown in Diagram 6.
If iron rejection is needed the function control is turned to D1 and the ADC switch is pushed to the right.
If ground exclusion all metal (G) is required the ADC switch is simply moved to the left. This automatically switches off D1 iron reject.
If further comparison of the target signal is required D2 silver paper reject or D3 foil reject can be selected as with the VLF/TR 2000-D by pressing the ADC control to the right and turning the function control to the required level of discrimination.
The ADC switch when used in the way intended by C-Scope will prove a valuable aid to the ardent metal detector enthusiast enabling him to make the most of his limited time.

C-SCOPE VLF/TR 2000-D and VLF/TR 3000-ADC

USE OF YOUR DETECTOR IN THE FIELD

Detection Range

Detection ranges will vary depending on the size of the object, the length of time an object has been buried, and the type of ground the object is buried in. Generally speaking a small object such as a coin can be detected up to 12" deep and larger objects such as a hoard of coins or a gun or sword up to about 4'. The best ground conditions are well compacted soils and coins can be found at the greatest depths if the object has been buried for some time and the coin has interacted with the salts in the ground, thereby appearing larger to the detector. 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 range will be reduced. 90% of all artifacts are found within 6" of the surface.

N.B. Adverse soil conditions can reduce depth of detection by more than ½.

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 of strength of the signal. A coin for example will have a sharp signal, a nail a fuzzy signal.

After digging up 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.

Detecting
To test for the type of signal you will get, take a coin or metal object and with the detector set up on a table tuned as previously described, move the metal object towards and across the search head. You will note that the volume will increase quickly as the metal object passes across the search head, with the loudest sound occurring when the search head is immediately centred over the metal object. As the object passes beyond the search head the sound will quickly fade.
Since the detectors employ a Total Response search head the object can be detected across the full width, back to front of the search head. Maximum sensitivity occurring over an area of 1" by 8" down the middle of the search head.

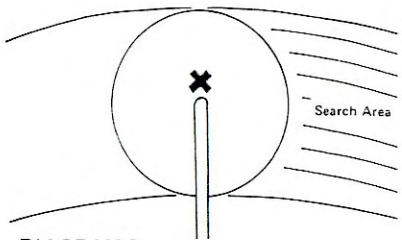


DIAGRAM 8

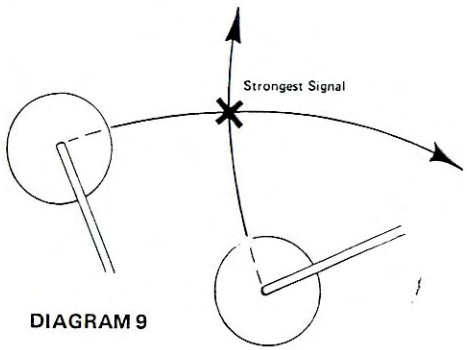


DIAGRAM 9

(i) Pinpointing
The strongest signal will always be received when the object is directly beneath the centre of the head (see X in diagram 8). To pinpoint the find, stop the search head when you are directly over the target object, then move the search head through 90° and sweep again, thus forming a cross with the two sweeps. The target object will be at the intersection of the two sweeps as shown in diagram 9.

(ii)
To 'focus' the target signal further raise the search head, retuning if necessary, and pass the search head over the object until only a faint signal is heard.

The faint signal will then be occurring at point X under the centre of the head (diagram 8). More accurate pinpointing, particularly of deeply buried objects can be achieved by finding the centre of the target object as described above and fixing its position in the 'minds eye'.

Turning your detector through 90° and sweeping across the target again will give a second reading, accurately determining the centre of the object (diagram 9).

Digging carefully at point X will reveal the find. With little practice, size, shape and depth of an article may be estimated in this way before digging.

NOTES ON G & DISCRIMINATION

In the G 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 G 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 G 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 tinplate 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 your C-Scope on 'discriminate' is easy, it's the ability to assess how to use it that calls for skill.

No matter what the site conditions, your C-Scope 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. (ADC control on 3000)

CARE AND MAINTENANCE

Care of your Detector
The working life of your detector will be shortened by careless use or neglect of the unit. Think of your detector as a scientific instrument NOT A TOY. Your detector is 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 fresh water, paying particular attention to the head, and carefully wiped dry. Foreign particles in the control box can be removed by brushing carefully (or with compressed air or vacuum cleaner).

Salt Damage
If you use your detector continually in a salty environment, particularly when the wind is blowing off the sea, salty air can penetrate the control box.

Corrosion can occur in vital parts of the delicate electronic circuitry.

It is therefore recommended that precautions such as covering the control box with polythene be taken to avoid damage.

The guarantee cannot cover such occurancies and any repairs needed because of salt water or spray will be charged.

The use of Solvents
It has been found that some types of solvent used for cleaning circuitry will in fact melt the plastic covered components.

Clean the circuit board only with recognised circuit board cleaning agents.

If damage from this source occurs a charge will be made for repairing the detector.

The life of the 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 the detector is to be stored, remove the batteries as they may leak and corrode the surrounding electronics.