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# **CS1220R**

*Operating Instructions*

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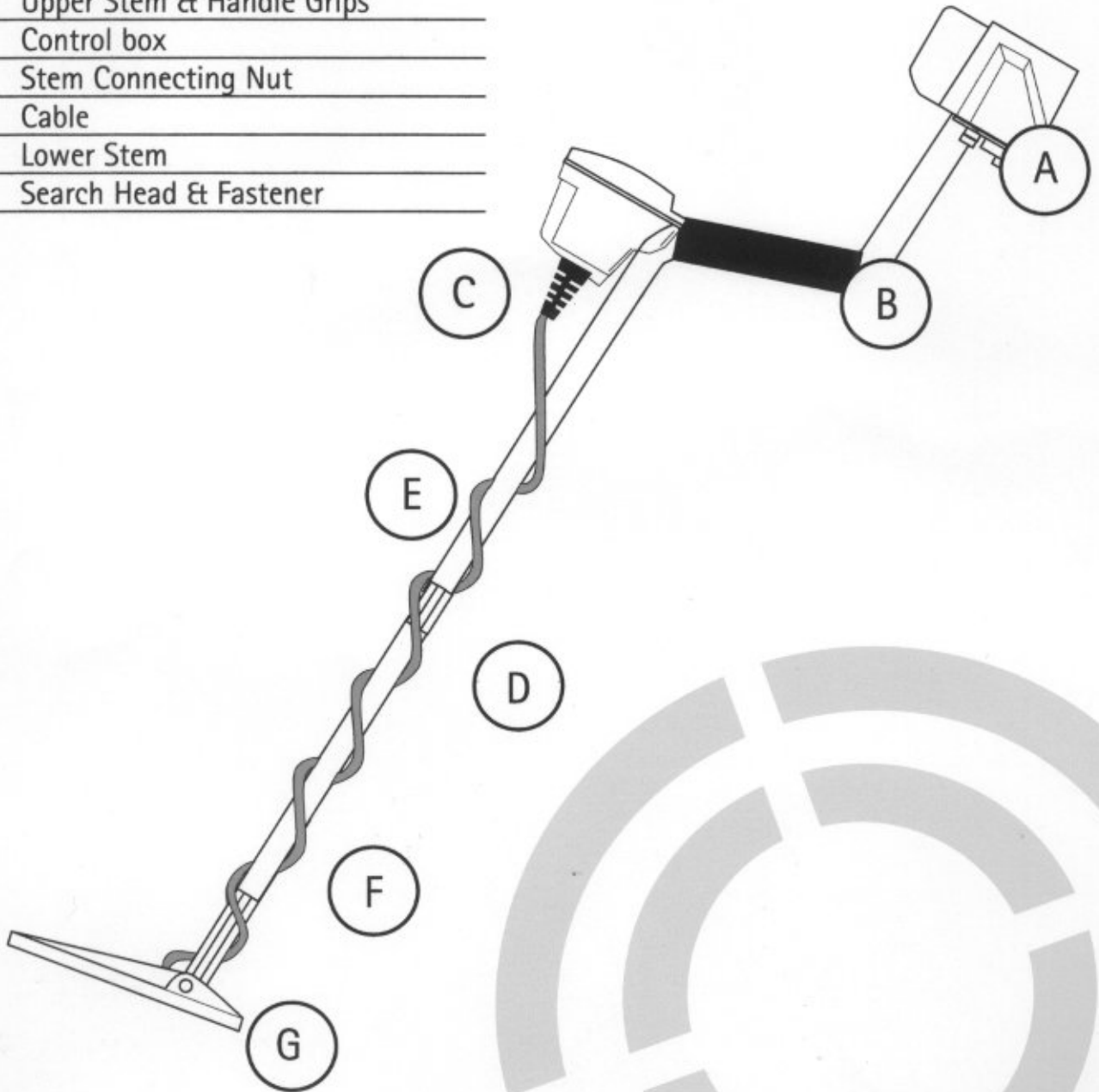
**C.SCOPE**



# CS1220R

## *Operating Instructions*

- A Battery Compartment
- B Upper Stem & Handle Grips
- C Control box
- D Stem Connecting Nut
- E Cable
- F Lower Stem
- G Search Head & Fastener



## ASSEMBLY

Join the 2 stem sections together, adjust for length, and wind the search-head cable around the stem and twist the cable connector to lock it to the socket.

Twist the stem locking mechanism to fix the stem in position at the desired length.

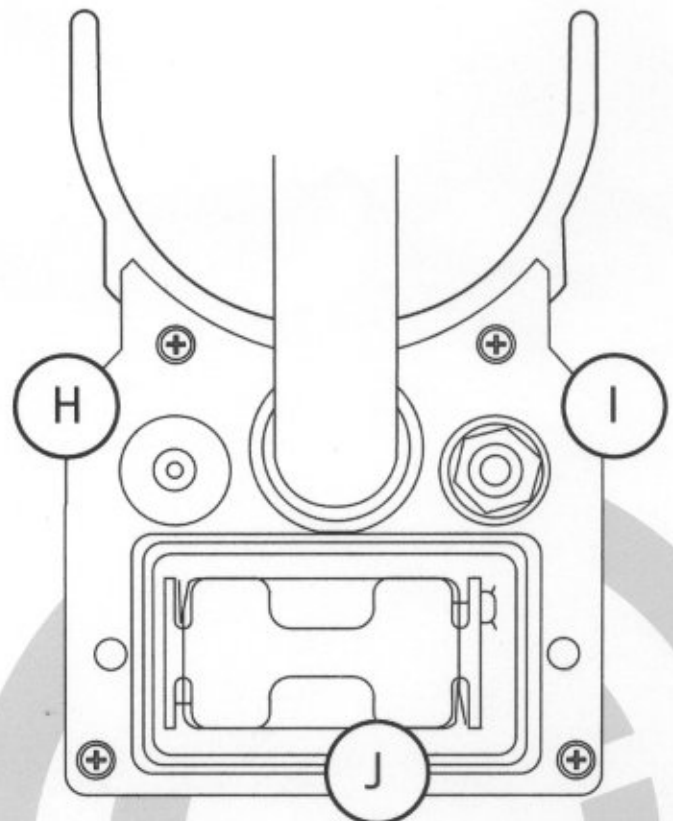
## BATTERIES

Fit 8 AA batteries to the holder pod being careful to observe polarity and that there is good contact with the battery terminals. Connect the pod to its cable and place into the battery compartment. Secure the battery compartment cover with the 2 retaining screws. There is a constant display of battery condition at the top left of the screen. Change the batteries when all segments of the icon are empty. Remove the batteries if the machine is to be stored for more than a few days. Rechargeable batteries can be recharged whilst still in the machine if using a C.Scope charger plugged into the charger socket next to the battery compartment cover. Non C.Scope rechargeable systems should have the batteries removed from the detector and charged according to the manufacturers' instructions.

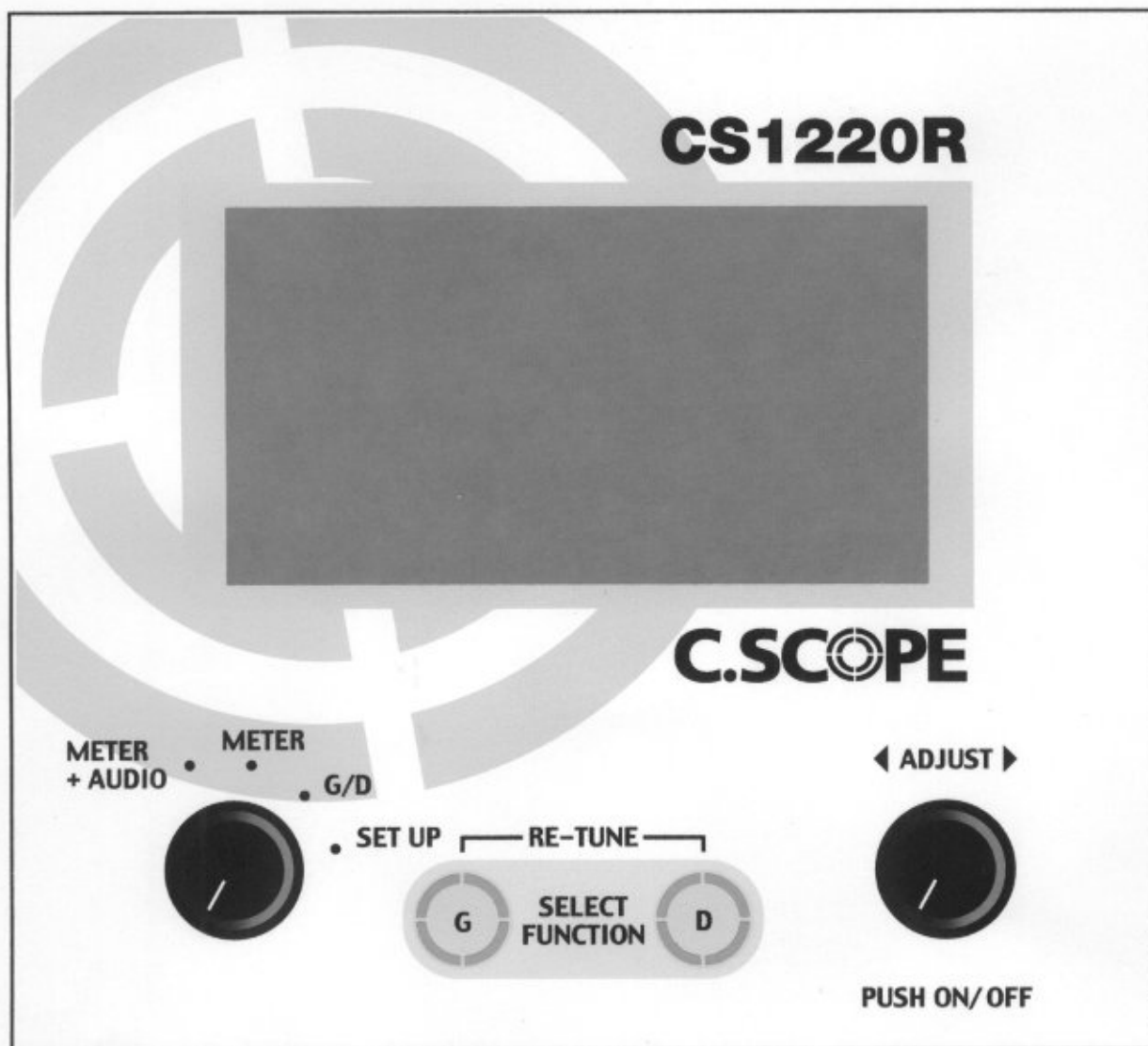
## SEARCHING

Sweep the detector head from side to side with a relaxed motion. Move forward at each sweep the width of the search head. Keep the detector head as close to the ground as possible. Maintain a logical search pattern so that the area being searched is completely covered.

Do not trespass. Ask permission before searching on private land. Check for local by-laws about detecting on public land. Observe the country code. Fill in all holes. Report all valuable or historically interesting finds to the appropriate authority. Do not touch any item suspected of being unexploded munitions - report to the police immediately.



H	Charger Socket
I	Headphone Socket
J	Battery Compartment

**FRONT PANEL****CONTROLS**

Function Switch (4 position Rotary)

i. Setup

ii. G/D

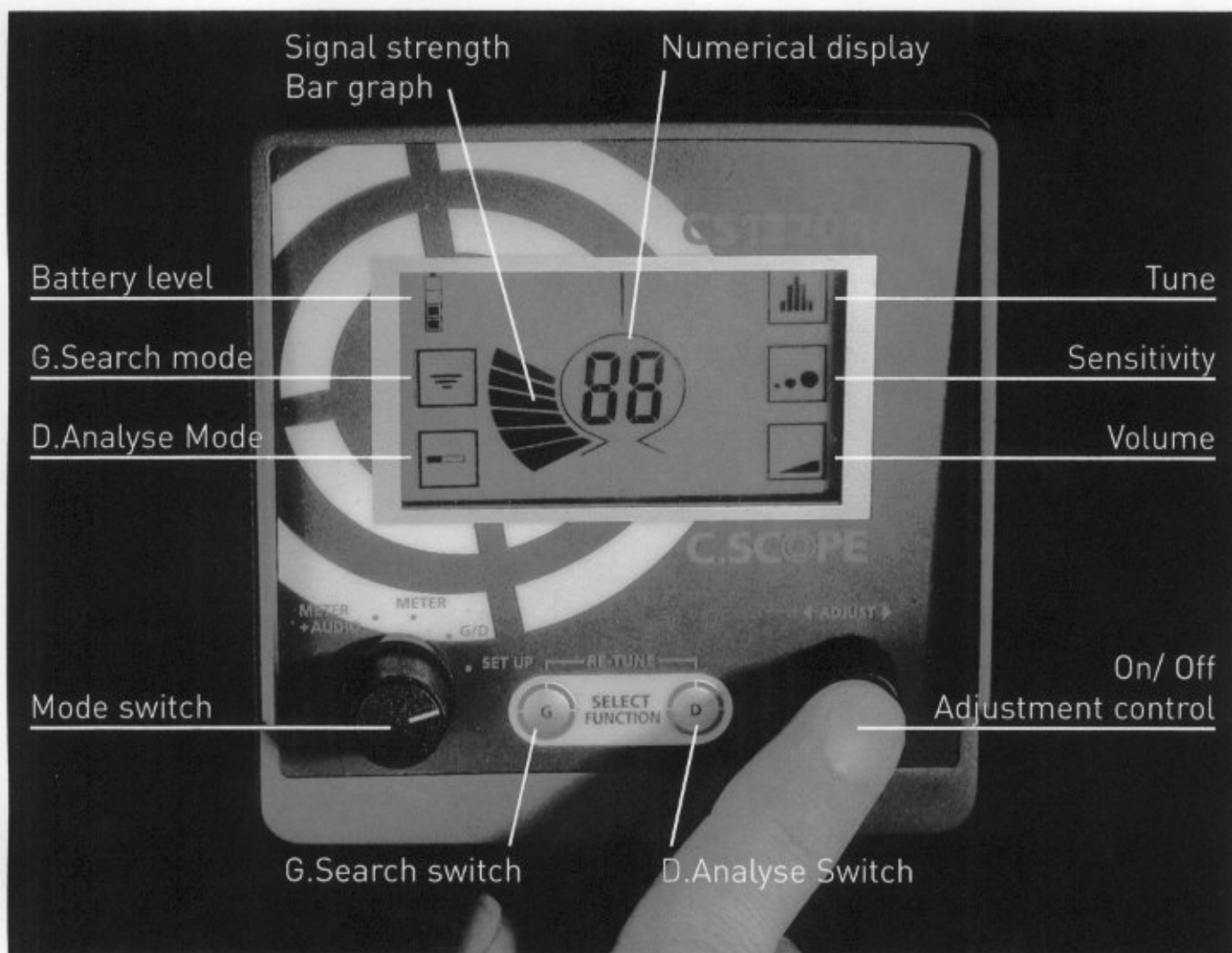
iii. Meter

iv. Meter + Audio

G mode switch (push button)

D mode switch (push button)

Mode level adjuster (Continuous rotary) + On/ Off switch (push Button)



**LCD (Display)**


- Battery charge level icon
- G.Search mode icon
- D.Search mode icon
- Tune mode icon
- Sensitivity mode icon
- Volume mode icon
- Bar graph




## OPERATION


### Set up

1. SWITCH ON. Press the ON/OFF Switch once for 'ON'. Press again for 'OFF'. At 'switch on' the detector runs through a display check sequence. This can be skipped by pressing the G or D button.
2. SET-UP Mode. Enter SET-UP Mode by rotating the mode switch to the SET-UP position.
3. TUNE LEVEL. Set up the tuning level for G Mode. Press the G mode push button (repeatedly if necessary) until the tune level icon is displayed at top right of the screen.


Rotate the adjust control  (continuous rotation available) until the desired tuning level is achieved. Most users would set the tuning to a point where a tone is just about audible. This is called the point of threshold.

4. SENSITIVITY LEVEL. Set up the sensitivity level for G Mode. Press the G mode push button (repeatedly if necessary) until the sensitivity level icon is displayed  (the middle symbol on the right hand side of the screen).


Rotate the adjust control until the desired sensitivity level is indicated. Generally, begin searching at maximum sensitivity setting '10' on the numerical display, and reduce it as necessary until readings become reliable. Some difficult ground conditions, wet salt beaches, heavily mineralised mining areas will require lower sensitivity settings.

5. VOLUME LEVEL. Set up the volume level for all modes. Press the G mode push button (repeatedly if necessary) until the volume icon is displayed  (at bottom right corner of the screen).

Rotate the adjust control until the desired volume level is achieved. Take care when using headphones.

6. TUNE LEVEL. Set up the tuning level for D mode. Press the D mode push button (repeatedly if necessary) until the tune level icon  is displayed at top right of the screen.

Rotate the adjust control until the desired tuning level is achieved.

7. SENSITIVITY LEVEL. Set up the sensitivity level for D Mode. Press the D mode push button (repeatedly if necessary) until the sensitivity icon  is displayed.

Rotate the adjust control until the desired sensitivity level is achieved. ( Because the signal from the ground is much larger in D mode, this will generally be lower then the G mode sensitivity level.

## Searching

There are 3 possible search modes selected by the rotary mode switch:

1. G/D SEARCH MODE. Rotate the mode change switch to G/D position.

1.1. G SEARCH MODE. Press the G Mode push button. Start detecting. All metal targets will give a positive response. Press the G Mode push button again to retune.

1.2. ADJUST GROUND SETTING. The numerical display shows the ground setting. A changing signal as the search head is raised and lowered above the ground means that the ground setting requires adjustment. The ground setting can be adjusted at any time during the search.

1.3. D SEARCH/ANALYSE MODE. Press the D Mode push button. Start detecting. Metal targets will give positive signals (increasing audio tone) or negative signals (fading audio tone), according to the discrimination setting (see box below). Press the D Mode push button again to retune.

ADJUST DISCRIMINATION SETTING. The discrimination point can be adjusted at any time during the search depending on the type of unwanted targets present on the detecting area. Rotate the adjust control until the desired discrimination point is achieved, confirmed on the numerical display in the centre of the screen.

2. METER DISCRIMINATE MODE. Rotate the mode change switch to 'Meter' position. Start detecting. D search/analyse mode cannot be selected in this mode.

2.1. ADJUST GROUND SETTING. The ground setting can be adjusted at any time during the search by rotation of the adjust control. The setting chosen is confirmed on the numerical display.

2.2. RETUNE IN METER MODE. Press either G or D Mode push button.



3. METER+AUDIO DISCRIMINATE MODE. Rotate the Mode change switch to 'METER+AUDIO' position. D search/analyse mode cannot be selected in this mode.

23. ADJUST GROUND SETTING. The ground setting can be adjusted at any time during the search by rotation of the adjust control.

2.2. RETUNE IN METER + AUDIO MODE. Press either G or D Mode push button.

## What is Ground Effect?


The ground acts as a barrier hindering the detector's ability to detect metal. The CS1220R can ignore the ground effects and so increase the sensitivity to metal objects.

Whenever the ground adjust symbol  is shown on the screen, the ground balance can be adjusted on a scale 1-99, confirmed by the large number in the centre of the screen. With the ground symbol  displayed, hold the detector head at knee height above a typical piece of ground where you plan to search. Lower the head slowly towards the ground. There should be little or no change in the signal from the ground. If there is an increase in the signal, increase the ground balance. If there is a decrease, reduce the ground balance and try the ground balance test again. Repeat the process until the optimum ground setting, ie. minimum signal change, has been achieved.

On difficult ground, particularly wet salt beaches, it may be necessary to reduce sensitivity to achieve satisfactory ground balance.

## What is Discrimination?

The CS1220R can distinguish between different metals and classify targets into 'good' and 'bad' categories.

Whenever the discrimination symbol  is shown on the screen, the CS1220R can be adjusted to sort signals according to their characteristics on a scale 1-99, confirmed by the number in the centre of the screen. At the low [1- 50] end of the scale iron based metals will cause the screen display to swing to the left, accompanied by a reduction in audio level tone, whilst other targets will cause the screen display to swing to the right with an increase in audio level tone. At the high end of the scale [50- 99] more categories of unwanted target such as ring pulls and bottle tops will cause a negative discrimination signal. Care must be taken using high discrimination levels because some desirable targets such as thin section hammered silver coins may be rejected by the detector as having similar characteristics to rubbish items. Higher discrimination levels tend to reduce the detection range of the detector. Some very large iron objects may be regarded as desirable targets. If in doubt, dig it!

In the meter plus audio and meter modes of operation the amount of discrimination is pre-set to reject small iron based rubbish at the lower end of the scale. If higher levels of discrimination are required G/D mode must be used.



## **Modes**

### **G/D Search Mode**

G stands for Ground Excluding Maximum Depth. The detector is put into G mode by switching the function control to G/D and pressing the G push button. The ground balance point should be established by following the instructions listed under Ground Effect. If the machine's tuning point drifts from its set position or if a large target is encountered and the machine needs to be reset, another press of the G push button will return the machine to its optimum setting.

D stands for Discrimination Variable Target Analysis with possible reduction of depth range. The detector is put into D mode by pressing the D push button. Retune in the D mode is achieved by another press of the D push button.

An effective search technique is to use maximum depth G mode. Then, when a target is located, analysis of the signal can be achieved by pressing the D button and scanning the target again, this time in discrimination mode. A target located in G mode may be out of range in D mode.

### **Meter Search Mode**

In this mode the audio side of the detector is operating in maximum depth G mode, while the screen display is operating on a low level of pre-set discrimination designed to identify iron-based rubbish. The audio tone will increase on every target. The screen display will swing to the left on small iron-based objects such as nails, and swing to the right on everything else.

The ground balance point can be adjusted at any time by rotating the mode level adjuster, using the method described under Ground Effect. The ground adjustment setting will be confirmed by the number 1-99 in the centre of the screen. If the detector drifts away from its tuning setting it can be retuned by pressing either the G or the D push buttons.

### **Meter and Audio Search Mode**

In this mode the innovatory audio discrimination feature of the CS1220R is brought into effect. Items at the 'good' end of the target spectrum will tend to give high pitched signals. Items at the 'bad' end of the target spectrum will tend to give low pitched signals. The screen display will react in a similar way as in Meter Search Mode, ie. a swing to the left on probable bad targets, and a swing to the right on probable good targets. Many factors can affect the accuracy of target analysis. If in doubt, dig it! Ground balance adjustment and push button retuning can be achieved at any time.

## **Detector Care**

Use a search head cover to protect the underside of the detector head. Wash salt, sand and mud off the detector head using clean water. Do not use cleaning fluids or solvents. Keep water and dirt away from the battery compartment, electronic control box and search head connector. Remove batteries before storage.

## **Warranty and after sales service**

The warranty card should be completed and returned as a record of your purchase. For service during and after the warranty period please contact the dealer where you bought the machine or C.Scope Customer Services.

This equipment conforms to the EMC Directive 89/336/EEC. System performance may be impaired by unusually strong electromagnetic fields.

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